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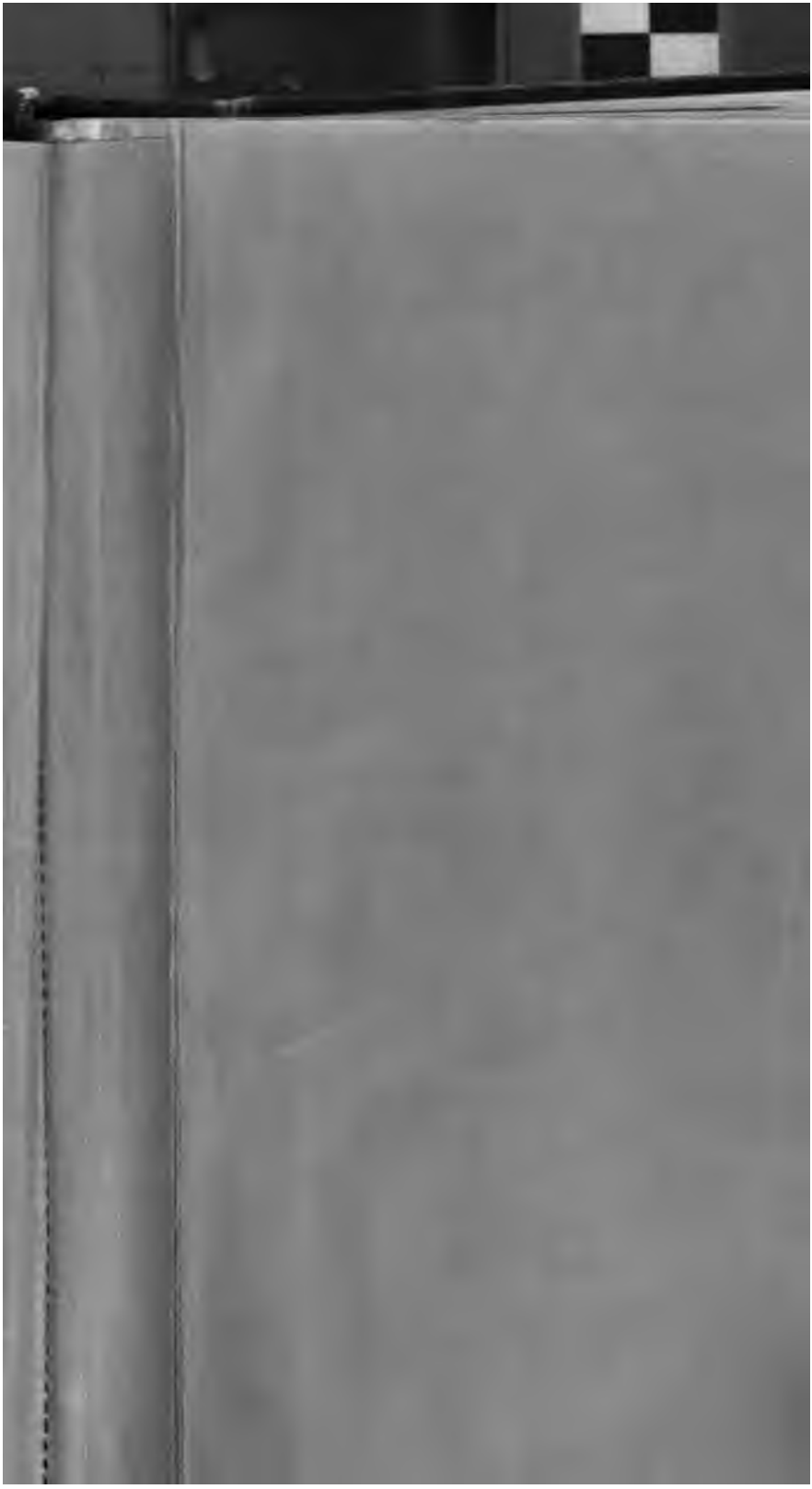
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# A

# HISTORY OF ARCHITECTUI

## ON THE COMPARATIVE METHOD

FOR THE STUDENT, CRAFTSMAN, AND AMATEU


BY

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FOURTH EDITION, REVISED AND ENLARGED

**WITH 256 PLATES, COMPRISING 1300 ILLUSTRATIONS**

LONDON

B. T. BATSFORD, 94, HIGH HOLBORN

NEW YORK: CHARLES SCRIBNER'S SONS

MCMI

NA200
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1901

BRADBURY, AGNEW, & CO. LD., PRINTERS,
LONDON AND TONBRIDGE.




63012

# PREFACE TO THE FOURTH EDITION.

In issuing a new and enlarged edition of this work, some remar
are necessary to explain the alterations and additions that ha
been made. It should be mentioned that the book has been c
of print for some fifteen months, and that in consequence of t
death of the late Prof. Banister Fletcher the work of revision h
fallen entirely on the junior author. This has occupied a cc
siderable portion of his time during the last two years. T
original text has been carefully revised, in fact, almost re-writte
and the additions enumerated below have been made:—

1. A note on Prehistoric Architecture has been added.

2. The remarks on the *architectural character* of each style ha
been re-written, and a more comprehensive examination given
the underlying constructive principles. By reading these notes
succession, a summary of the progress and evolution of architectu
with special reference to such features as the arch, dome and vau
will be obtained.

3. A note on the religious orders of the Middle Ages is given
the chapter devoted to Romanesque Architecture in Europe.

4. A new chapter on "Gothic Architecture in Europe," simil
to those devoted to Romanesque and Renaissance Architecture,
added. This contains an account of Gothic vaulting, and will
found useful as an introduction to the style in general. It m
also enable the student to grasp the fundamental differenc
between English and Continental Gothic.

5. An account of the timber roofs of the Middle Ag added, and, with the sheet of illustrations (No. 85), wil explain this characteristic feature of English Gothic.

6. The portion devoted to Examples of English been re-written. It now includes a list of the Englis arranged in alphabetical order, and illustrations from of models (Nos. 86, 87 and 88), so that their gene character can be seen at a glance. A note on En Churches, and on the castles and residences of the no been added and illustrated by many plans showing t of such buildings.

7. Short notes are given on Scottish and Irish indicating the main stream of development in these co descriptive notes on Elizabethan mansions and on Bri Architecture, together with a chapter on American showing the influences which have led to such remar in that country.

8. The main addition to the letterpress is the Part II. This affords a comparative treatment of w as the non-historical styles, *viz.*, the Indian, Chinese, Saracenic. They have been kept apart from the H with which they are but little connected, as they c form part of the evolution of Western Architecture a history of architecture, as a whole, is bound of these Eastern styles, whose interrelations characteristics are of no little interest.

9. The most important change, however, in t in the illustrations. These now consist of 2 reproduced from photographs of the chief e including their details: 128 are from line prepared for the book, comprising in all ov illustrations. The object kept in view ha principles of construction, and to give exa ornaments peculiar to each period from sou

buildings. The source of the illustrations is given in each case. They have been numbered throughout, but where more than one occurs upon the same plate, the individual illustrations are lettered as A, B, C, etc.; thus, No. 216 C means plate No. 216, illustration C, a cross-section of St. James's Church, Piccadilly.[1]

10. The Glossary which ends the book has been re-written, and expanded by the insertion of seventy-five additional names. It now includes all the principal architectural terms likely to be required by the reader.

11. The Index has been carefully compiled and should add to the usefulness of the book.

12. I am indebted to my friend Mr. Arthur Bernard Cook, M.A., formerly fellow of Trinity College, Cambridge, for useful suggestions in connection with the chapter on Greek Architecture, and to my Publisher for the great assistance rendered in the use of valuable reference books and in the revision of the Bibliography.

BANISTER F. FLETCHER.

29, NEW BRIDGE STREET,
LUDGATE CIRCUS, E.C.,
*October*, 1901.

[1] These plates are published as large lecture diagrams (40 ins. by 27 ins.), and as lantern slides for the use of lecturers, particulars of which may be obtained from the author.

# PREFACE TO THE THIRD EDITION.

THE Authors are encouraged to believe that two editions of this work having been exhausted within the space of fifteen months, tends to show that their efforts have to some extent supplied the want which they ventured to think, and are now assured, existed in the domain of Architectural literature. It was their hope that the book, with its comprehensiveness, its carefully chosen illustrations, its brevity, and its avoidance of obscure technicalities, might be helpful not only to the professional Architect and the Student, but also to the lay reader desirous of acquiring a knowledge of the oldest of civilized Arts. The result of their labour is doubly gratifying to them, inasmuch as they seem to have attained their object to an extent as complete as it is agreeably surprising. Ample evidence is at hand that the book has proved an intelligible aid to a wide circle of readers. It has been accepted as a Text-book for University Extension lectures; whilst the fact that it has also been adopted as a Text-book in the leading Colleges and Schools of Art of Great Britain and Ireland, as well as of many similar institutions in America and Australia is sufficient proof that lecturers have not been backward in according it a welcome.

In the present edition some slight errors which occurred in the first, and which were kindly pointed out in the Press criticisms have been carefully removed; some additions to the letterpress have been made, treating more fully certain points which it was thought required emphasizing, whilst two plates of Classic and Gothic mouldings have been added.

The Authors take this opportunity of announcing that, in order to treat of the Styles which may be termed non-historical, they are preparing a second volume, in the writing of which the comparative method will be adopted which has been found useful in the present book.

29, NEW BRIDGE STREET,
LUDGATE CIRCUS, E.C.
*October*, 1897.

# PREFACE TO THE FIRST EDITION.

THE Authors' aim in writing this book has been, not only to give in clear and brief form the characteristic features of the architecture of each people and country, but also to consider those influences which have contributed to the formation of each special style.

They are of opinion that in published works upon the subject, Architecture has often been too much isolated from its surroundings, and that the main points of the physical geography, social progress, and historical development of each country require to be understood by those who would study and comprehend its particular style.

In order to bring out the effects of these influences, and also the qualities of the styles themselves, a *comparative* and *analytical* method has been adopted, so that by the contrast of qualities the differences may be more easily grasped. For instance, the special character of Gothic architecture becomes manifest when put in comparison with the Classic and Renaissance styles; and, furthermore, the shades of difference in the local or national phases of each, can also be equally drawn out by a similar comparative treatment.

The styles themselves are then analysed and the parts contrasted; the analysis being carried out on the basis of the essential parts which every building possesses. As this system pervades the whole book, either the influences, character, examples, or comparative features of each style, can be contrasted with those

in any other style. This then is the scheme of the boc has been divided into five sections in each period, as follc

1. INFLUENCES.
   - i. Geographical.
   - ii. Geological.
   - iii. Climate.
   - iv. Religion.
   - v. Social and Political.
   - vi. Historical.
2. ARCHITECTURAL CHARACTER.
3. EXAMPLES OF BUILDINGS.
4. COMPARATIVE.
   - *A*. *Plan*, or general distribution of the building.
   - *B*. *Walls*, their construction and treatment.
   - *C*. *Openings*, their character and shape.
   - *D*. *Roofs*, their treatment and development.
   - *E*. *Columns*, their position, structure, and decoration
   - *F*. *Mouldings*, their form and decoration.
   - *G*. *Ornament*, as applied in general to any building.
5. REFERENCE BOOKS.

SECTION 1 is divided into the six leading influences th expected to shape the architecture of any country the first three being structural, the next two the forces, and the last containing those external histo which may alter or vary the foregoing.

SECTION 2 describes the character of the architectu special quality, and the general effect produced b as a whole.

SECTION 3 contains the examples, *i.e.* the chief bui style, briefly named and described, being the *co* preceding influences affect and from which comparative analysis is deduced.

SECTION 4 is this comparative analysis, in which every style of architecture is regarded as the solution of certain fundamental problems, *i.e.* each building must have all or most of the parts A to G, and consequently there is both interest and instruction to be gained in learning and comparing how each style has solved these points of the problem.

SECTION 5 gives authorities and more especially directs the reader who wishes to pursue the study of any style in further detail.

In treating of the buildings themselves under Section 3 the authors have endeavoured to avoid long descriptions, which are necessarily technical and intolerably dry, and difficult to follow, even by those who have had the technical training, and have either the building or complete drawings of it before them. They have therefore provided the largest possible number of illustrations, and have confined the text to brief, but it is hoped vivid, notes of the special qualities and characteristics of the building referred to.

It is hoped that the book will appeal not only to students who require an outline of architectural history as part of their artistic and professional education, but also to the increasing number of art workers who are interested in architecture in its relation to those accessory arts in which they are engaged. Lastly; it is believed that a work in which architecture is treated as a result and record of civilization, will prove attractive to that increasing public which interests itself in artistic development.

29, NEW BRIDGE STREET,
LUDGATE CIRCUS, E.C.
*New Year's Day*, 1896.



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| | ,, ,, ,, plan | E | |
| | ,, ,, ,, half plans | F, G | |
| | Tomb of Galla Placidia, Ravenna, sections | H, J | |
| | ,, ,, ,, ,, plan | K | |
| 47. | **Basilica Church of St. Paul, Rome** | | Ph |
| 48. | **Early Christian Examples—II.** | | |
| | Basilica Church of St. Peter, Rome, elevation | A | |
| | section | B | |
| | plan | C | Du |
| | S. Maria Maggiore, Rome, plan | D | |
| | S. Paul's, Rome, plan | E | |
| | S. Stefano Rotondo, Rome, elevation | F | |
| | ,, ,, ,, section | G | D' |
| | ,, ,, ,, plan | H | |
| | Baptistery of Constantine, Rome, plan | J | |
| | ,, ,, ,, elevation | K | Du |
| | ,, ,, ,, section | L | |
| 49. | **Basilica Church of S. Maria Maggiore, Rome** | | Ph |
| 50. | **St. Stefano Rotondo, Rome.** | | Ph |
| 51. | **Early Christian Ornament.** | | |
| | S. Paul, Rome, Corinthian column | A | D' |
| | S. Lorenzo, floor mosaic | B | Di |
| | S. Paul's, Rome, composite column | C | D' |
| | Grado Cathedral, window | D | |
| | St. Apollinare-in-Classe, Ravenna, sarcophagus | E | Ca |
| | Window at Venice, eighth century | F | |
| | St. Agnes, Rome, mosaic in apse | G | D' |
| | St. Giovanni, Rome, mosaic frieze in cloister | H | Di |
| | St. Clemente, Rome, parapet and pilaster | J | Ca |
| | S. Maria Maggiore, Rome, mosaic | K | D' |
| | S. Giovanni, mosaic floor | L | Di |

## BYZANTINE ARCHITECTURE.


| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 52. | **Byzantine System of Construction.** | | |
| | Dome construction | A, B | Lethaby and Swainson. |
| | Method to find outline of pendentive | C, D | |
| | St. Sergius, Constantinople, interior view | E | Choisy. |
| | St. Sergius, Constantinople, exterior view | F | |
| | St. Sergius, Constantinople, plan | G | |
| | Tomb of Galla Placidia, section | H | |
| | S. Sophia, Constantinople, sectional view | J | |
| | S. Sophia, Constantinople, exterior view | K | |
| 53. | **Santa Sophia, Constantinople** | | Photo. |
| 54. | **Byzantine Examples—I.** | | |
| | S. Sophia, Constantinople, north-east elevation | A | Salzenberg. |
| | S. Sophia, Constantinople, longitudinal section | B | |
| | S. Sophia, Constantinople, ground plan | C | |
| 55. | **Santa Sophia, Constantinople** | | Photo. |
| 56. | **S. Mark's, Venice** | | Photo. |
| 57. | **Byzantine Examples—II.** | | |
| | St. Mark's, Venice, section | A | Gailhabaud. |
| | St. Mark's, plan | C | |
| | St. Front, Perigueux, section | B | |
| | St. Front, Perigueux, plan | D | |
| 58. | **St. Mark's.** | | Photo. |
| 59. | **Byzantine Examples—III.** | | |
| | Cathedral at Athens, sketch | A | Gailhabaud. |
| | ,, ,, plan | B | |
| | ,, W. and E., elevations | C, D | |
| | Cathedral at Athens, section | E | |
| | Church of Theotokos, Constantinople, W. and S. elevations | F, G | Gailhabaud. |
| | plan | H | |
| | longitudinal section | J | |
| 60. | **Byzantine Capitals from St. Mark's, Venice** | | Photo. |
| 61. | **Byzantine Ornament.** | | |
| | S. Sophia, cap | A | Lethaby and Swainson. |
| | Bowl and tile cap | B | Texier and Pullan. |
| | St. Demetrius, Thesalonica, Ionic cap | C | |
| | ,, Byzantine Corinthian cap | D | |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 61. | **Byzantine Ornament**—*continued.* | | |
| | S. Sophia, bird and basket cap . . | E | Salzenberg. |
| | St. Demetrius, Bird Corinthian cap . | F | Texier and Pullan. |
| | S. Sophia, window from the Gynaeceum, elevation . . . . . | G | Salzenberg. |
| | S. Sophia, window from the Gynaeceum, section . . . . . | H | Salzenberg. |
| | ROMANESQUE ARCHITECTURE. | | |
| 62. | **Map of Europe at the Death of Charles the Great.** | | |
| 63. | **The Baptistery, Cathedral and Leaning Tower at Pisa** . . . . . | | Photo. |
| 64. | **Pisa Cathedral** . . . . . | | Photo. |
| 65. | **S. Miniato, Florence** . . . . . | | Photo |
| 66. | **Italian Romanesque Examples.** | | |
| | San Michele, Pavia, part long. section . | A | Dartein. |
| | ,, ,, ,, half cross section . | B | Dartein. |
| | ,, ,, ,, details of piers . | C, D | Dartein. |
| | ,, ,, ,, plan . . . | E | Dartein. |
| | Doorway S. Christoforo, Lucca, arch moulding . . . . . | F | Shaw. |
| | bases . . . . . | G | Shaw. |
| | elevation . . . . . | H | Shaw. |
| | jamb mouldings . . . . | J | Shaw. |
| | "Comparative" treatment of Classic architrave . . . . . | K | |
| 67. | **S. Michele, Pavia** . . . . . | | Photo. |
| 68. | **S. Zenone, Verona** . . . . . | | Photo. |
| 69. | **Monreale Cathedral, Sicily** . . . | | Photo. |
| 70. | **Italian Romanesque Ornament.** | | |
| | St. Clemente. Rome, doorway . . | A | Schultz. |
| | St. Paul without the walls, Rome, cloisters . . . . . | B | Shaw. |
| | Cathedral at Bari, cornice, etc. . . | C | Schultz. |
| | Cathedral at Trani, cornice . . . | D | Schultz. |
| | ,, ,, pilasters . . . | E, F | Schultz. |
| | San Zenone, Verona, porch . . . | G | Knight. |
| | St. Michel's Church, bishop's throne . | H | Schultz. |
| | Sta. Trinita, Venosa, cap . . . | J | Schultz. |
| | Cathedral at Molfetta, caps . . . | K, L | Schultz. |
| | St. Paul, Rome, cap . . . . . | M | Schultz. |
| 71. | **The Abbaye-aux-Dames, Caen** . . | | Photo. |
| 72. | **French Romanesque Examples.** | | |
| | Abbaye-aux-Hommes, exterior . . | A | Pugin. |
| | ,, transverse section | B | Pugin. |
| | ,, interior . . | C | Pugin. |
| | ,, plan . . . | D | Pugin. |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 72. | **French Romanesque Examples** — *continued.* | | |
| | Angoulême Cathedral, section | E | Sharpe. |
| | ,, ,, plan | F | |
| | ,, ,, section through dome | G | |
| 73. | **The Abbaye-aux-Hommes, Caen** | | Photo. |
| 74. | **Porch of S. Trophîme, Arles** | | Photo. |
| 75. | **French Romanesque Ornament.** | | |
| | Fleac, capital | A | Ruprich-Robert. |
| | Pontorson, corbel table | B | |
| | Vaison, frieze | C | Revoil. |
| | S. Trophîme, capitals | D, E | |
| | St. Paul-Trois-Château, archivolt | F | |
| | Abbaye-de-Montmajour, corbel | G | Ruprich Robert. |
| | Angoulême Cathedral, frieze | H | |
| | ,, ,, corbel | J | |
| | D'Ouezy, capital | K | |
| | Plans of piers | L to P | |
| 76. | **Church of the Apostles, Cologne** | | Photo. |
| 77. | **German Romanesque Examples.** | | |
| | Church of the Apostles at Cologne, part elevation | A | Boisserée. |
| | Church of the Apostles at Cologne, part section | B | |
| | Church of the Apostles at Cologne, plan | C | |
| | Worms Cathedral, part elevation | D | King. |
| | ,, ,, part section | E | |
| | ,, ,, transverse section | F | |
| | ,, ,, plan | G | |
| 78. | **Worms Cathedral** | | Photo. |
| 79. | **German Romanesque Ornament.** | | |
| | Limburg Cathedral, capitals | A, B | Möller. |
| | Church of St. Pantaleon, capital | C | Boisserée. |
| | St. Gereon, Cologne, capital and base | D | |
| | Worms Cathedral, cornice | E | King. |
| | St. Gereon, Cologne, double capital | F | Boisserée. |
| | Limburg Cathedral, towers | G | Möller. |
| | Worms Cathedral, capital and base | H | |
| | Limburg Cathedral, capitals | J | |
| | Ilsenburg Cathedral, capital | K | Forster. |
| | ,, ,, column | L | |
| | Laach Abbey Church, window | M | |
| | Worms Cathedral, doorway | N | Möller |


## GOTHIC ARCHITECTURE.


| | | | |
|---|---|---|---|
| 80. | **Map of Mediæval Europe, Thirteenth Century.** | | |
| 81. | **Principles of Gothic Construction.** | | |
| | Amiens Cathedral | A | Viollet-le-Duc. |

| No. of Plate. | Name. | No. of Illustration. | Authorities |
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| 81. | **Principles of Gothic Construction**—*continued.* | | |
| | St. Saviour's, Southwark, vaulting compartment | B | |
| | St. Saviour's, Southwark, setting out of groined vault, etc. | C, D | |
| 82. | **Comparative Views of Models of Continental Cathedrals.** | | |
| | Milan | A | Photos by T. Thatch |
| | Evreux | B | |
| | Cologne | C | |
| | Vienna | D | |
| | Chartres | E | |
| 83. | **Comparative Diagrams of Vaults and Domes.** | | |
| | Roman cross vault | A | Purchase. |
| | Romanesque cross vault | B | |
| | Byzantine and Renaissance domes | C | |
| | Gothic vault | D | |
| | Renaissance cross vault | E | |
| 84. | **Comparative Examples, showing progress of Gothic Vaulting.** | | |
| | Waggon vault | A | Parker. |
| | ,, ,, plan | B | |
| | ,, ,, stilted | C | |
| | ,, ,, showing diagonal and transverse groins | D | |
| | Abbaye-aux-Hommes, sexpartite vaulting | E | |
| | ,, ,, external view | F | |
| | Peterborough, Norman vaulting | G | Parker. |
| | ,, ,, ,, plan | H | |
| | Salisbury, Early English groined vaulting | J, L | |
| | Westminster Abbey, groined, with intermediate ribs | K, M | |
| | Bristol Cathedral, Decorated Lierne vault | N, O | |
| | St. Mary, Redcliffe, Perpendicular stella vault, interior view | P, Q | |
| | Gloucester Cathedral, Perpendicular fan vaulting | R, S | |
| 85. | **Types of Mediæval Open Timber Roofs.** | | |
| | Stowe Bardolph Church, trussed rafter roof | A | Brandon. |
| | Trinity Chapel, Cirencester, tie-beam roof | B | |
| | St. Mary Magdalen, Pulham, collar-braced roof | C | |
| | Trunch Church, hammer-beam roof | D | |
| | Middle Temple Hall, double hammer-beam roof | E | Weale. |

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| 85. | **Types of Mediæval Open Timber Roofs—** *continued.* | | |
| | Ixworth Church, aisle roof | F | Brandon. |
| | New Walsingham, aisle roof | G | |
| | Westminster Hall, hammer-beam roof | H | Thomas Morris. |
| | Evolution of hammer-beam | J | |
| 86. | **Comparative Views of Models of English Cathedrals—I.** | | |
| | Chichester | A | Photos by T. Thatcher. |
| | Durham | B | |
| | Ely | C | |
| | Worcester | D | |
| | Rochester | E | |
| | Oxford | F | |
| | Carlisle | G | |
| | Bristol | H | |
| 87. | **Comparative Views of Models of English Cathedrals—II.** | | |
| | York | A | Photos by T. Thatcher. |
| | Chester | B | |
| | Peterborough | C | |
| | Exeter | D | |
| | Winchester | E | |
| | Hereford | F | |
| | Wells | G | |
| | Gloucester | H | |
| 88. | **Comparative Views of Models of English Cathedrals—III.** | | |
| | Salisbury | A | Photos by T. Thatcher. |
| | Lincoln | B | |
| | Canterbury | C | |
| | Norwich | D | |
| | Ripon | E | |
| | Lichfield | F | |
| 89. | **Comparative Plans of English Cathedrals.** | | |
| | York | A | Britton. |
| | Ely | B | |
| | Peterborough | C | |
| | Winchester | D | |
| | Lincoln | E | |
| 90. | **Salisbury Cathedral.** | | Photo. |
| 91. | **Comparative Examples of English Cathedrals.** | | |
| | Peterborough, external bay | A | Ruprich-Robert. |
| | ,, detail of pier | B | |
| | ,, cross section | C | |
| | ,, internal bay | D | |
| | Salisbury, external bay | E | Britton. |
| | ,, part cross section | F | |
| | ,, internal bay | G | |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
|---|---|---|---|
| 92. | **Salisbury Cathedral.** | | Photo. |
| 93. | **Comparative Examples of English Cathedrals.** | | |
| | Lichfield, exterior | A | Britton. |
| | ,, section | B | |
| | ,, interior | C | |
| | Winchester, exterior | D | |
| | ,, section | E | |
| | ,, interior | F | |
| 94. | **Lincoln Cathedral.** | | Photo. |
| 95. | **Lincoln Cathedral.** | | Photo. |
| 96. | **Westminster Abbey.** | | |
| | Exterior | A | J. Neale. |
| | Section | B | |
| | Interior | C | |
| | Plan | D | |
| 97. | **Henry VII. Chapel, Westminster Abbey.** | | Photo. |
| 98. | **Typical English Parish Church.** | | |
| | St. Andrew's, Heckington, Lincs. | | |
| | ,, ,, view | A | Bowman and Crowther. |
| | ,, ,, interior | B | |
| | ,, ,, plan | C | |
| | ,, ,, elevation | D | |
| | ,, ,, section | E | |
| 99. | **Henry VII. Chapel, Westminster Abbey, Fan Vaulting.** | | Photo. |
| 100. | **Comparative Plans of English Domestic Buildings.** | | |
| | Tower of London | A | Kerr. |
| | Oxburgh Hall | B | |
| | Kenilworth Castle | C | |
| | Hatfield House, plans | D, E | Gotch and Brown. |
| | Longford Castle | F | |
| | Stoke Park | G | Kerr. |
| | Chevening House, plans | H, J | "Vitruvius Brittanicus" |
| | Holkham Hall | K | Kerr. |
| 101. | **English Gothic Domestic Examples.** | | |
| | Penshurst Place, elevation of great hall | A | Dollman. |
| | ,, ,, section of roof | B | |
| | ,, ,, chimney stack | C, D | |
| | ,, ,, section of hall roof | E | |
| | ,, ,, general plan | F | |
| | Lambeth Palace, cross sections | G | |
| | ,, ,, plan and longitudinal section | H, K | |
| | Chiddingstone, Kent, timber houses | J | |
| | St. Mary's Hospital, Chichester, plan | L | |
| | ,, ,, ,, sections | M, N | |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 102. | **St. George's Chapel, Windsor.** | | Photo. |
| 103. | **Saxon Architecture.** | | |
| | Earls Barton, tower | A | Parker and Bloxham. |
| | ,, ,, window | B | |
| | Deershurst, ,, | C | |
| | Earls Barton, doorway | D | |
| | Repton, cap | E | |
| | Wickham, window | F | |
| | Corhampton, impost | G | |
| | Sompting, caps | H | Rickman. |
| | St. Benets, Cambridge, caps | J | |
| 104. | **St. John's Chapel, Tower of London** | | Photo. |
| 105. | **Comparative Examples showing progress of English Gothic Cathedral Architecture.** | | |
| | Ely Cathedral, nave, interior and exterior | A | Sharpe. |
| | Peterborough ,, ,, ,, | B | |
| | Ripon, choir, interior and exterior | C | |
| | Ely, presbytery ,, ,, | D | |
| 106. | **Comparative Examples showing progress of English Gothic Cathedral Architecture (*continued*).** | | |
| | Lichfield Cathedral, nave, interior and exterior | E | Sharpe. |
| | Ely choir, interior and exterior | F | |
| | Winchester, nave, interior and exterior | G | |
| 107. | **Iffley Church, Oxon.** | | Photo. |
| 108. | **Norman Mouldings.** | | |
| | Lincolnshire, zigzag | A | Parker, Rickman, Bloxham, and others. |
| | St. Contest, Caen, chevron | B | |
| | Winchester, billet | C | |
| | Canterbury ,, | D | |
| | Westminster, chevron | E | |
| | North Hinksey ,, | F | |
| | Abbaye-aux-Dames, billet | G | |
| | Stoneleigh, double cone | H | |
| | St. Peters-at-Gowts, nebule | J | |
| | Iffley, Oxon., flower | K | |
| | North Hinksey, beaks head | L | |
| | Lincoln, embattled | M | |
| 109. | **Comparative Examples of English Gothic Doorways.** | | |
| | Clare Church, elevation | A | Colling. |
| | ,, ,, cap and base | B | |
| | ,, ,, jamb moulding | C | |
| | St. John's, Cley, half exterior and interior | D | Bowman and Crowther. |
| | ,, ,, cap and base | E | |
| | ,, ,, arch mould | F | |
| | ,, ,, jamb and arch mould | G | |
| | ,, ,, cap and base | H | |

| No. of Plate. | Name. | No. of Illustration. | Authorities |
|---|---|---|---|
| 109. | **Comparative Examples of English Gothic Doorways**—*continued.* | | |
| | Merton College Chapel, Oxford, elevation | J | Pugin. |
| | ,, ,, ,, ,, cap and base | K | Pugin. |
| | Merton College Chapel, Oxford, jamb and arch moulds | L | Pugin. |
| | Merton College Chapel, Oxford, jamb mould | M | Pugin. |
| 110. | **Comparative Examples showing progress of Gothic Tracery Development.** | | |
| | Lynchmere, plate tracery | A | Parker. |
| | Woodstock ,, ,, | B | Parker. |
| | Dorchester, bar tracery | C | Parker. |
| | Minster Lovel, bar tracery | D | Parker. |
| | Headington, plate tracery | E | Parker. |
| | Wimborne Minster, grouped lancet lights | F | Parker. |
| | Warmington, grouped lancet lights | G | Parker. |
| | Long Wittenham, geometrical tracery | H | Parker. |
| | St. Mary Magdalene, curvilinear tracery | J | Parker. |
| | Duston, clerestory windows | K, L | Parker. |
| | Great Milton, curvilinear tracery | M | Parker. |
| | New College Chapel, rectilinear tracery. | N | Parker. |
| | King's College Chapel ,, ,, | O | Parker. |
| | St. Mary's, Dinan, Flamboyant example. | P | Parker. |
| 111. | **Comparative Selection of Gothic Ornaments in Different Periods.** | | |
| | Early English dog-tooth ornament. | A | Parker. |
| | ,, ,, crocket | J | Bloxham. |
| | ,, ,, parapet, St. Mary's, Beverley | M | Parker. |
| | "Decorated" four-leaved flower | B | Parker. |
| | ,, ball flower | C | Parker. |
| | ,, tablet flower | D | Parker. |
| | ,, typical crocket | K | Glazier. |
| | ,, St. Mary Magdalene, Oxford, parapet | N | Parker. |
| | "Perpendicular" vine leaf and grapes | E | Parker. |
| | ,, cornice flower | F | Parker. |
| | ,, Tudor flower, cresting | G | Parker. |
| | ,, Tudor rose | H | Bloxham. |
| | ,, crocket | L | Bloxham. |
| | ,, St. Peter's, Oxford | O | Parker. |
| 112. | **Comparative Mouldings of the Periods of Gothic Architecture.** | | |
| | "Norman" capitals, bases, piers, etc. | 1 to 13 | Parker and Paley. |
| | "Early English" ,, ,, | 14 to 25 | Parker and Paley. |
| | "Decorated" ,, ,, | 26 to 38 | Parker and Paley. |
| | "Perpendicular" ,, ,, | 39 to 54 | Parker and Paley. |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 113. | **Comparative Examples of Gothic Capitals and Carved Foliage.** | | |
| | "Norman" capitals . . . . . | A, B, C | Parker, Pugin, and Colling. |
| | "Early English" capitals and spandrel | D, E, F | |
| | "Decorated" capitals and ornament . | G, H, J, K | |
| | "Perpendicular" capitals, spandrels, etc. | L, M, N, O, P | |
| | **FRENCH GOTHIC.** | | |
| 114. | **French Gothic Examples—I.** | | |
| | Beauvais Cathedral, section . . . | A | Burges. |
| | ,, ,, plan . . . | C | |
| | ,, ,, plans of buttress, etc. | D, E, F | |
| | Notre Dame, Paris, wheel window . | B | Gailhabaud. |
| 115. | **Comparative Views of Models of Continental Cathedrals.** | | |
| | Amiens . . . . . | A | Photos by T. Thatcher. |
| | Rouen . . . . . | B | |
| | Antwerp . . . . . | C | |
| | Notre Dame, Paris . . . . | D | |
| | Strasbourg . . . . . | E | |
| | Beauvais . . . . . | F | |
| 116. | **French Gothic Examples—II.** | | |
| | Comparative plans of cathedrals: | | |
| | Rouen . . . . . | A, C | Winkle. |
| | Evreux . . . . . | B, D | |
| | St. Ouen, Rouen . . . . . | E | Pugin. |
| | Chartres . . . . . | F, K | King. |
| | Rheims . . . . . | G, J | |
| | St. Chapelle, Paris . . . . | H | |
| 117. | **Notre Dame, Paris** . . . . . | | Photo. |
| 118. | **French Gothic Examples—III.** | | |
| | Notre Dame, Paris, exterior bay . . | A | Lassus and Viollet-le-Duc. |
| | ,, ,, ,, cross section . . | B | |
| | ,, ,, ,, interior bay . . | C | |
| | ,, ,, ,, plan . . . | D | |
| 119. | **Notre Dame, Paris** . . . . . | | Photo. |
| 120. | **Comparative Plans of English and French Types of Cathedrals.** | | |
| | Salisbury Cathedral . . . . | A, C, D, E | Britton. |
| | Amiens ,, . . . . | B, F, G, H | Winkle. |
| 121. | **Amiens Cathedral** . . . . . | | Photo. |

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| 122. | **Rheims Cathedral** . . . . . | | Photo. |
| 123. | **Coutances Cathedral.** View of west front. | | Photo. |
| 124. | **House of Jacques Cœur, Bourges** . . | | Photo. |
| 125. | **Palais de Justice, Rouen** . . . . | | Photo. |
| 126. | **French Gothic Ornament.** | | |
| | Chartres, figure sculpture . . . | A | |
| | ,, cap . . . . . | G | Nesfield. |
| | Amiens, flèche . . . . . | B | Burges. |
| | ,, grotesque figure . . . | E | Nesfield. |
| | Notre Dame, Paris, open parapet . . | C, D | ,, |
| | ,, ,, stone pulpit . . | R | Burges. |
| | Mont St. Michel, foliage . . . | F | Nesfield. |
| | Notre Dame, Châlons sur-Marne . . | H | Davie. |
| | Piers in Northern and Southern France . | J, K, L, M, N, O | |
| | Semur, cap and crocket . . . | P, Q | Nesfield. |
| 127. | **Antwerp Cathedral** . . . . . | | Photo. |
| 128. | **Belgian Gothic Examples.** | | |
| | St. Gudule, Brussels, elevation . . | A | King. |
| | ,, ,, section . . . | B | |
| | ,, ,, interior elevation . | C | |
| | ,, ,, plan . . . | D | |
| | Antwerp Cathedral, section . . . | E | |
| | ,, ,, plan . . . | F | |
| 129. | **Town Hall, Bruges** . . . . . | | Photo. |
| 130. | **Town Hall, Ghent** . . . . . | | Photo. |
| 131. | **German Gothic Examples—I.** | | |
| | Cologne Cathedral, exterior . . . | A | Boisserée. |
| | ,, ,, section . . . | B | |
| | ,, ,, interior . . . | C | |
| | ,, ,, piers . . . | D, E, G, H | |
| | ,, ,, plan . . . | F | |
| 132. | **Ratisbon Cathedral** . . . . . | | Photo. |
| 133. | **German Gothic Examples—II.** | | |
| | St. Stephen, Vienna, plan . . . | A | Gailhabaud. |
| | ,, ,, section . . . | B | |
| | ,, ,, interior . . . | C | |
| | St. Elizabeth, Marburg, plan . . | D | King. |
| | ,, ,, exterior . . | E | |
| | ,, ,, section . . | F | |
| | ,, ,, interior . . | G | |
| 134. | **St. Stephen, Vienna** . . . . . | | Photo. |
| 135. | **German Gothic Ornament.** | | |
| | Freibourg Cathedral, canopy caps . . | A, C | Shaw. |
| | St. Paul's, Worms, caps . . . | B | Möller. |






| No. of Plate. | Name. | No. of Illustration. | Authorities |
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| 135. | **German Gothic Ornament**—*continued.* | | |
| | Cologne, parapet | D | Boisserée. |
| | ,, corbel cap | J | Boisserée. |
| | ,, gargoyles | K, L | Boisserée. |
| | ,, doorway | F | Boisserée. |
| | Gelnhausen, doorway | E | Möller. |
| | Bruges, miserere | G, H | Shaw. |
| | Marburg, tomb | M | Möller. |
| 136. | **Milan Cathedral** | | Photo. |
| 137. | **Italian Gothic Examples—I.** | | |
| | Milan Cathedral, plan | A | Gailhabaud and others. |
| | ,, long. section | B | Gailhabaud and others. |
| | ,, transverse section | C | Gailhabaud and others. |
| | S. Maria-dei-Fiori, Florence, plan | D | Gailhabaud and others. |
| | ,, long. section | E | Gailhabaud and others. |
| 138. | **Milan Cathedral** | | Photo. |
| 139. | **The Doge's Palace, Venice** | | Photo. |
| 140. | **Italian Gothic Examples—II.** | | |
| | Palazzo Della Ca D'Oro, elevation | A | Cicognara. |
| | Doge's Palace, Venice, façade | B | Cicognara. |
| | Palazzo Pisani, Venice, façade | C | Cicognara. |
| | Siena Cathedral, plan | D | Cicognara. |
| 141. | **Ca D'Oro Palace, Venice** | | Photo. |
| 142. | **Florence Cathedral** | | Photo. |
| 143. | **Siena Cathedral** | | Photo. |
| 144. | **Monreale Cathedral** | | Photo. |
| 145. | **Italian Gothic Ornament.** | | |
| | Baptistery at Pisa, detail of cap from pulpit | A | Rohault de Fleury. |
| | ,, ,, plan of pulpit | D | Rohault de Fleury. |
| | ,, ,, pulpit | B | Rohault de Fleury. |
| | ,, ,, candelabra | L | Rohault de Fleury. |
| | Campo Santo, Pisa, window | C | Shaw. |
| | Pisa Cathedral, portion of pulpit | E | Rohault de Fleury. |
| | ,, ,, lion and base of column | F | Rohault de Fleury. |
| | Naples, cap | G | Shaw. |
| | Ducal Palace, Venice, cap | H | Cicognara. |
| | Venice, angle window | J | Shaw. |
| | Palazzo Scaligeri, Verona, campanile | K | Shaw. |
| 146. | **Burgos Cathedral** | | Photo. |
| 147. | **Burgos Cathedral** | | Photo. |
| 148. | **Spanish Gothic Examples.** | | |
| | Sta. Maria Del Mar, Barcelona, plan | A | Street. |
| | Barcelona Cathedral, plan | B | Street. |
| | Gerona ,, ,, | C | Street. |
| | Toledo ,, ,, | D | Street. |
| | Lerida ,, ,, | E | Street. |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 149. | **San Juan de los Reyes, Toledo** . . | | Photo. |
| 150. | **San Gregorio, Valladolid** . . . | | Photo. |
| 151. | **Spanish Gothic Ornament.** | | |
| | Burgos Cathedral, ornament from tomb . | A | Waring. |
| | ,, ,, ,, Conzalo ,, . | B | |
| | ,, ,, balcony . . . | C | |
| | ,, ,, sculptured pier . . | H | |
| | ,, ,, plan . . . . | L | |
| | ,, ,, window of dome . | J | |
| | ,, ,, elbows of sedilia . | K | |
| | Miraflores, Infante's tomb . . . | D | |
| | ,, base of Infante's tomb . . | G | |
| | ,, pier of ,, ,, . . | M, N | |
| | Las Huelgas, caps . . . . | E | |
| | San Gil, canopy . . . . . | F | |
| | **RENAISSANCE ARCHITECTURE.** | | |
| 152. | **Florentine Renaissance—I.** | | |
| | Palazzo Strozzi, main cornice . . | A | Raschdorff. |
| | ,, ,, section and elevation of court . . . | C | |
| | ,, ,, plan . . . . | E | Grandjean et Famin. |
| | ,, ,, keystone . . . | F | Raschdorff. |
| | ,, Riccardi, main cornice . . | B | Grandjean et Famin. |
| | ,, ,, elevation . . . | D | Waring and Macquoid. |
| | ,, ,, plan . . . . | G | Grandjean et Famin. |
| 153. | **Palazzo Riccardi, Florence** . . . | | Photo. |
| 154. | **Florentine Renaissance Examples—II.** | | |
| | Pazzi Chapel, plan . . . . | A | Grandjean et Famin. |
| | ,, ,, elevation . . . . | B | |
| | ,, ,, section . . . . | C | |
| | San Lorenzo, plan . . . . | D | D'Agincourt. |
| | St. Andrea, Mantua, plan . . . | E | D'Agincourt. |
| | ,, ,, ,, long. section. . | F | |
| | ,, ,, ,, porch . . . | H | |
| | St. Spirito, cap, etc. . . . . | G | |
| | ,, ,, plan . . . . . | J | |
| | ,, ,, long. section . . . | K | |
| 155. | **Florentine Renaissance Ornament.** | | |
| | Duomo of Fiesole, console from tomb . | A | Waring and Macquoid. |
| | Palazzo Vecchio, cap . . . . | B | |
| | Medici Chapel, Santa Croce, corbel . | C | |
| | Palazzo Strozzi, window . . . | D | |
| | ,, Gondi, ,, . . . . | E | Grandjean et Famin. |
| | ,, Pandolfini, window . . . | F | |
| | ,, ,, pilaster . . . | G, J | |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 155. | **Florentine Renaissance Ornament**—*continued.* | | |
| | Mercato Nuovo, niche | H | Raschdorff. |
| | Banner bracket | K | |
| | Piazzo Annunziata, bronze fountain | L | Waring and Macquoid. |
| | Palazzo Guadagni, lamp bracket | M | Raschdorff. |
| 156. | **Palazzo Giraud, Rome** | | Photo. |
| 157. | **Roman Renaissance Examples—I.** | | |
| | Cancellaria Palace, elevation | A | Letarouilly. |
| | ,, ,, plan | B | Letarouilly. |
| | Massimi Palace, elevation | C | T. F. Suys et L. P. Haudebourt. |
| | ,, ,, plan | D | T. F. Suys et L. P. Haudebourt. |
| 158. | **Farnese Palace, Rome** | | Photo. |
| 159. | **Roman Renaissance Examples—II.** | | |
| | Farnese Palace, Rome— | | |
| | Details of main cornice | A, B | Letarouilly. |
| | ,, ,, | C | Letarouilly. |
| | Front façade | D | Letarouilly. |
| | Elevation of cortile | E | Letarouilly. |
| | Plan | F | Letarouilly. |
| | Section and plan through loggia | G, H | Letarouilly. |
| | Upper plan | J | Letarouilly. |
| 160. | **Roman Renaissance Examples—III.** | | |
| | Tempietto of S. Pietro in Montorio, Rome— | | |
| | Elevation | A | Letarouilly. |
| | Section | B | Letarouilly. |
| | Plan | C | Letarouilly. |
| | S. Andrea, Rome, plan | D | Letarouilly. |
| | ,, ,, section | E | Letarouilly. |
| | ,, ,, elevation | F | Letarouilly. |
| | S. Maria Della Consolazione, Todi, plan | G | D'Agincourt. |
| | ,, ,, elevation | H | D'Agincourt. |
| | ,, ,, section | J | D'Agincourt. |
| | Il Jesu, Rome, plan | K | Gailhabaud. |
| | ,, ,, elevation | L | Gailhabaud. |
| | ,, ,, section | M | Gailhabaud. |
| 161. | **The Capitol, Rome** | | Photo. |
| 162. | **Roman Renaissance Examples—IV.** | | |
| | The Capitol, Rome, plan | A | Durand. |
| | ,, ,, elevation | B | Durand. |
| | Palace of Caprarola, plan | C | Durand. |
| | ,, ,, elevation | D | Durand. |
| | ,, ,, section | E | Durand. |
| 163. | **St. Peter, Rome** | | Photo. |

| No. of Plate. | Name. | No. of Illustration. | Author |
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| 164. | **Roman Renaissance Examples—V.** | | |
| | St. Peter, Rome— | | |
| | Plan of peristyle | A | Durand. |
| | ,, ,, by Bramante | B | |
| | Suggested dome by Sangallo | C | |
| | ,, ,, by Bramante | D | |
| | Elevation. | E | |
| | Section of dome | F | |
| | Cross section | G | Durand. |
| | Sketch of peristyle | H | |
| | Suggested plan by Raphael | J | Durand. |
| | General plan | K | |
| | Half plan by Peruzzi | L | |
| | ,, by Ant. Sangallo | M | Fergusson |
| 165. | **St. Peter's, Rome** | | Photo. |
| 166. | **St. Peter's, Rome** | | Photo. |
| 167. | **Roman Renaissance Ornament.** | | |
| | Farnese Palace, window | A | Letarouilly |
| | ,, ,, | B | |
| | ,, ,, | G | |
| | ,, ,, | H | |
| | Cancellaria Palace, window and balcony. | D | |
| | ,, ,, ,, section | E | |
| | ,, ,, ,, plan | F | |
| | Massimi Palace, doorhead | J, K | |
| | S. M. Sopra Minerva, doorway | L | |
| | S. Agostino, panels | N | |
| | S. M. Del Popolo, angle of tomb | O | |
| | ,, ,, tomb | P | |
| 168. | **Palazzo Vendramini, Venice** | | Photo. |
| 169. | **Venetian Renaissance Examples—I.** | | |
| | Palazzo Grimani, plinth. | A, B, C | Cicognara |
| | ,, cornice, caps, etc. | D, E, F | |
| | ,, elevation of half façade | G | |
| | ,, plan | J | |
| | Palazzo Vendramini, half facade | H | |
| | ,, cornices and cap | K, L | |
| 170. | **The Pesaro Palace, Venice** | | Photo. |
| 171. | **Venetian Renaissance Examples—II.** | | |
| | St. Mark's Library, façade | A | Waring & Macquoid |
| | ,, ,, cornices | B, C | |
| | Doge's Palace, cornices. | D, E | Cicognara |
| | ,, façade | F | |
| | ,, piers | G, H, J | |
| 172. | **Venetian Renaissance Examples—III.** | | |
| | Sta. Maria Dei Miracoli, façade | A | Cicognara |
| | ,, ,, section | B | |
| | ,, ,, long. section | C | |
| | ,, ,, plan | D | |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 172. | **Venetian Renaissance Examples—III.**—*continued.* | | |
| | St. Giorgio Dei Greci, façade | E | Cicognara |
| | ,, ,, long. section | F | |
| | ,, ,, plan | G | |
| | ,, ,, doorhead | H | |
| | ,, ,, cornice | J | |
| | St. Giorgio Maggiore, façade | K | |
| | ,, ,, plan | L | |
| | ,, ,, section | M | |
| 173. | **S. Maria Della Salute, Venice** | | Photo. |
| 174. | **Comparative Plans of Various Cathedrals.** | | |
| | St. Paul's, London | A | J. Clayton. |
| | St. Peter's, Rome | B | Durand. |
| | Pantheon, Paris | C | Durand. |
| | Cologne Cathedral | D | Boisserée. |
| | S. Maria Della Salute | E | Cicognara. |
| 175. | **Venetian Renaissance Ornament.** | | |
| | St. Mark, pedestal of flagstaff | A | Cicognara. |
| | Equestrian statue of Colleoni, elevation | B | Cicognara. |
| | Half plan, ditto | E | Cicognara. |
| | Entablature and capital to ditto | F | Cicognara. |
| | Scuola di S. Marco, doorway | C | Waring and Macquoid. |
| | ,, ,, panel | G | Photo. |
| | Window and balustrade | D | Cicognara. |
| | Palazzo Zorzi, capital | H | Photo. |
| | S. M. dei Miracoli, capital and pilaster | J | Photo. |
| | ,, Greci, campanile | K | Waring and Macquoid. |
| 176. | **The Basilica at Vicenza** | | Photo. |
| 177. | **Renaissance Examples by Palladio.** | | |
| | The Basilica at Vicenza, elevation | A | Palladio. |
| | ,, ,, section | B | |
| | ,, ,, plan | C | |
| | Villa Capra, Vicenza, elevation | D | |
| | ,, ,, section | E | |
| | ,, ,, plan | F | |
| | Palazzo Del Capitanio, elevation | G | |
| | Palazzo Porto Barbarano, ,, | H | |
| 178. | **Renaissance Examples in Genoa and Verona.** | | |
| | Palazzo Pompeii, Verona, façade | A | Waring and Macquoid. |
| | ,, Municipio, Genoa, façade | B | Reinhardt. |
| | ,, ,, section | C | Reinhardt. |
| | ,, ,, long. section | D | Reinhardt. |
| | ,, ,, plans | E, F | Reinhardt. |

| No. of Plate. | Name. | No. of Illustration. | Authorities |
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| 179. | **Renaissance Ornament in Genoa and Verona.** | | |
| | Palazzo Gambaro, angle of cornice to doorway | A | Reinhardt. |
| | ,, ,, plan of cornice to do. | B | |
| | ,, ,, key sketch | D | |
| | ,, Carega, angle cornice | C | |
| | ,, ,, key sketch | E | |
| | Old Convent, Genoa, lavabo | F | Kinross. |
| | Villa Cambiaso, coffered ceiling | G | Reinhardt. |
| | ,, ,, pilaster | K, L | |
| | Typical cap | H | Kinross. |
| | Doorway | J | Waring and Macquoid. |
| | Sanmichele's house, Verona, doorway | M | |
| 180. | **Château de Blois, François Premier Escalier** | | Photo. |
| 181. | **French Renaissance Examples—I.** | | |
| | Château de Bury, plan | A | Durand. |
| | ,, ,, elevation | B | |
| | ,, Chambord, plan | C | |
| | ,, ,, elevation | D | |
| | The Louvre, Paris, facade | E | |
| | ,, ,, block plan | F | |
| 182. | **Château De Chambord** | | Photo. |
| 183. | **St. Eustache, Paris** | | Photo. |
| 184. | **French Renaissance, Examples—II.** | | |
| | The Invalides, Paris, section through dome | A | Gailhabaud. |
| | ,, ,, plan | B | |
| | The Pantheon, Paris, section through dome | C | Durand. |
| | ,, ,, plan | D | |
| | Château de Maisons, elevation | E | Sauvageot. |
| | ,, ,, plan | F | Sauvageot and Durand. |
| | Luxembourg Palace, Paris, part elevation | G | Durand. |
| | ,, ,, ,, plan | H | |
| 185. | **The Pantheon, Paris.** | | Photo. |
| 186. | **French Renaissance Ornament—I.** | | |
| | Palace at Fontainbleau, cap | A, B | Pfnor. |
| | ,, ,, panel | C, E | |
| | Château de Chambord, cap | D, F | Berty. |
| | ,, ,, dormer | K, I., M | |
| | ,, Chenonceaux, doorway | G, H, J | |
| 187. | **French Renaissance Ornament—II.** | | |
| | Keystone | A | César Daly. |
| | Balcony (Louis XV.) | B, C, D | |
| | Versailles, lead fountain. | E | |
| | Lycée Napoleon, dormer window | F | |

| No. of Plate. | Name. | No. of Illustration | Authorities. |
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| 187. | **French Renaissance Ornament—II.**—*continued.* | | |
| | Paris, console | G, H | Daly. |
| | Versailles, style of decoration. | L | |
| | Doorway | J, K | |
| | Paris, fountain (Louis XV.) | N, O, P | |
| | ,, door and window. | Q, R, S | |
| | Palais Royal, cornice and balustrade | T, U | |
| 188. | **Heidelberg Castle** | | Photo. |
| 189. | **The Rathhaus, Cologne** | | Photo. |
| 190. | **German Renaissance Examples.** | | |
| | Lemgo Town Hall, elevation. | A | Lambert and Stahl. |
| | Solothurn Town Hall, elevation | B | |
| | Ober-Ehnheim, wellhead | C, D | |
| | Weimar, arcade | E | |
| | Nuremberg, dormer window | F, G | |
| 191. | **The Pellerhaus, Nuremberg** | | Photo. |
| 192. | **German Renaissance Ornament.** | | |
| | Heidelberg Castle, windows and niche | A, C | Lambert and Stahl. |
| | ,, ,, statue | B | |
| | Freiburg, Switzerland, cap | D | |
| | Heilbron, gable | E | |
| | Freiburg, cap | F | |
| | Erfurt, window | G | |
| | Heilbron, cartouche | H | |
| | Munich, doorway | J | |
| 193. | **Belgian and Dutch Renaissance Examples.** | | |
| | Haarlem, pinnacles, etc. | A, B, C, E | Ewerbeck. |
| | Antwerp, gable | D | |
| | Utrecht, pilasters | F, H | |
| | Leyden Town Hall, elevation. | G | |
| 194. | **The Town Hall, Antwerp** | | Photo. |
| 195. | **Belgian and Dutch Renaissance Ornament.** | | |
| | Dordrecht, bench-ends | A, B | Ewerbeck. |
| | Antwerp, doorway. | C | |
| | Gable end | D | |
| | Enghien, cap. | E | |
| | Brussels, ornament. | F | |
| | Musée Plantin, Antwerp, door | G | |
| | ,, ,, ,, staircase | H | |
| | Zalt Bommel, figures | J | |
| | L'Eglise des Capucins, ornament | K | |
| 196. | **Town Hall, Seville** | | Photo. |
| 197. | **Spanish Renaissance Examples.** | | |
| | Toledo, the Alcazar, portion of façade | A | Prentice. |
| | Avila, the Casa Polentina courtyard | B | |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 198. | **Burgos. Courtyard of the House of Mivanda** | | Photo. |
| 199. | **Comparative Plans of Various Buildings.** | | |
| | The King's House, Greenwich | A | Campbell. |
| | The Rotunda, Vicenza | B | Palladio. |
| | The Escurial, Spain | C | Thompson. |
| | Villa of Pope Julius, Rome | D, E | Letarouilly. |
| | Blenheim Palace | F | Kerr. |
| 200. | **Spanish Renaissance Ornament.** | | |
| | Siguenza Cathedral, door from cloisters | A | |
| | Cuenza Cathedral, iron screen | B, C | |
| | Alcala De Henares, window | D | |
| | Avila, iron pulpit | E | |
| 201. | **Map of Western Europe at the Time of Elizabeth.** | | |
| 202. | **Hatfield House. The Hall** | | Photo. |
| 203. | **Knole, Kent. Staircase** | | Photo. |
| 204. | **Haddon Hall. Long Gallery** | | Photo. |
| 205. | **English Renaissance Examples—I.** | | |
| | Holland House, elevation | A | Richardson. |
| | ,, ,, ground floor plans | B, C | Princess of Lichenstein. |
| | Stockton House, side of drawing-room | D | Henry Shaw. |
| | Blickling Hall, Norfolk, the great staircase | E | Henry Shaw. |
| 206. | **Kirby Hall, Northants** | | Photo. |
| 207. | **Little Moreton Hall, Cheshire** | | Photo. |
| 208. | **The Tower of the old Schools, Oxford** | | Photo. |
| 209. | **Hatfield House** | | Photo. |
| 210. | **English Renaissance Ornament—I.** | | |
| | Bramshill House, Hants, balustrade | A | Henry Shaw. |
| | ,, ,, ,, oriel | E | Henry Shaw. |
| | ,, ,, ,, arcade | G | Henry Shaw. |
| | ,, ,, ,, plaster ceiling | M | Henry Shaw. |
| | Duke's House, Bradford, balustrade | B | Richardson. |
| | Hatfield House, newel | C | Henry Shaw |
| | Blickling Hall, Norfolk, entrance | D | Henry Shaw |
| | ,, ,, ,, chimney piece | K | Henry Shaw |
| | All Hallow's (Barking) Church, wall tablet | F | Henry Shaw |
| | House at Yarmouth, frieze | H | Henry Shaw |
| | Aston Hall, frieze | J | Henry Shaw |
| | Claverton, Somersetshire, rain water head | I. | Richardson. |

| No. of Plate. | Name. | No. of Illustration. | Authorities. |
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| 211. | **English Renaissance Examples—II.** | | |
| | York Water-Gate, London, elevation | A | Campbell. |
| | ,, ,, ,, plan | B | Campbell. |
| | Banqueting House, Whitehall, elevation | C | Kent. |
| | ,, ,, ,, plan | D | Campbell. |
| | Whitehall Palace, ground plan | E | Kent. |
| 212. | **English Renaissance Examples—III.** | | |
| | St. Paul's, London, Wren's original plan | A | Clayton and Gailhabaud. |
| | ,, ,, section through dome, etc. | B | Clayton and Gailhabaud. |
| | ,, ,, plan | C | Clayton and Gailhabaud. |
| | ,, ,, sketch of peristyle | D | Clayton and Gailhabaud. |
| | ,, ,, transverse section | E | Clayton and Gailhabaud. |
| | ,, ,, western façade | F | Clayton and Gailhabaud. |
| 213. | **St. Paul, London** | | Photo. |
| 214. | **English Renaissance Examples—IV.** | | |
| | St. Mary Le Bow, section | A | Clayton. |
| | ,, ,, elevation | B | Clayton. |
| | ,, ,, plans | 1–6 | Clayton. |
| | St. Bride, elevation | C | Clayton. |
| | ,, section | D | Clayton. |
| | ,, plans | 7–12 | Clayton. |
| 215. | **English Renaissance Examples—V.** | | |
| | St. Stephen's, Walbrook, details | A, C | Clayton. |
| | ,, ,, section | B | Clayton. |
| | ,, ,, plan | D | Clayton. |
| 216. | **English Renaissance Examples—VI.** | | |
| | St. James', Piccadilly, London— Plan | A | Clayton. |
| | Elevation | B | Clayton. |
| | Cross section | C | Clayton. |
| | Long. section | D | Clayton. |
| | St. Bride's, London, plan | E | Clayton. |
| | ,, ,, elevation | F | Clayton. |
| | ,, ,, cross section | G | Clayton. |
| | ,, ,, long. section | H | Clayton. |
| 217. | **English Renaissance Examples—VII.** | | |
| | Castle Howard, elevation | A | Campbell. |
| | ,, section | B | Campbell. |
| | ,, central portion | C | Campbell. |
| | Kedlestone Hall, elevation | D | Woolfe and Gandon. |
| | ,, section | E | Woolfe and Gandon. |
| | ,, plan | F | Woolfe and Gandon. |
| 218. | **Somerset House, London** | | Photo. |
| 219. | **English Renaissance Ornament—II.** | | |
| | Doorway | A, C | Kent. |
| | Horse Guards, London, typical window | B | Sir William Chambers. |
| | Aston, wall tablet | D | James Gibbs. |

| No. of Plate. | Name. | No. of Illustration | Authority |
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| 219. | **English Renaissance Ornament—II.**—*continued.* | | |
| | Wilton, archway | E | Sir W. Chambers. |
| | St. Martin's Church, London, window | F | James Gibbs. |
| | Gate piers | G | Kent. |
| | Chimney piece | H, K | James Gibbs. |
| | Westminster, monument | J | |
| 220. | **Comparative diagrams of the proportions of the Orders after Sir W. Chambers.** | | |
| | Greek Doric | A | Chambers. |
| | Tuscan | B | |
| | Roman Doric | C | |
| | Ionic | D | |
| | Corinthian | E | |
| | Composite | F | |
| 221. | **The Houses of Parliament, London** | | Photo. |
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| 222. | **Map of India.** | | |
| 223. | **Indian Examples and Ornament.** | | |
| | Sanchi, gateway | A | Fergusson. |
| | Indian roof construction | B, C | |
| | Kanaruc in Orissa, pagoda | D, E | |
| | Sanchi, rail | F | |
| | Seringham, compound pillar | G | Le Bon. |
| | Bindrabund, Agra, plan | H | Cole. |
| | ,, ,, pillar | J | |
| | Greek Temple, Baillur, plan | K | Fergusson. |
| | Vellore, compound pillar | L | |
| | Stone ornaments | M, N, O, P | Owen Jones |
| 224. | **Karli.** Interior of rock-cut cave | | Photo. |
| 225. | **Ajunta.** Façade of rock-cut cave | | Photo. |
| 226. | **Elephanta.** Interior view of rock-cut cave. | | Photo. |
| 227. | **Mount Abu.** Interior of Dilwana Temple. | | Photo. |
| 228. | **Palitana.** The great Chawmukh Temple | | Photo. |
| 229. | **Gwalior.** The great Sas Bahu Temple | | Photo. |
| 230. | **Umber.** The Hindu Temple of Tagat-Garwan | | Photo. |
| 231. | **Hullabid.** The East door of the double Temple | | Photo. |
| 232. | **Ellora.** The "rath" (Temple of Kailos) | | Photo. |
| 233. | **Tanjore.** The Great Temple from the N.E. | | Photo. |
| 234. | **Mandura.** The West Gateway and Gopura. | | Photo. |
| 235. | **Tarputry.** Entrance to the old Temple | | Photo. |

## CHINESE AND JAPANESE ARCHITECTURE.


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# DIAGRAM TABLE

OF THE

## SYSTEM OF CLASSIFICATION

## FOR EACH STYLE.

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1. **Influences.**
   - I. GEOGRAPHICAL.
   - II. GEOLOGICAL.
   - III. CLIMATE.
   - IV. RELIGION.
   - V. SOCIAL AND POLITICAL.
   - VI. HISTORICAL.
2. **Architectural Character.**
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   - A. **Plan**, or general distribution of the building.
   - B. **Walls**, their construction and treatment.
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   - D. **Openings**, their character and shape.
   - E. **Columns**, their position, structure, and decoration.
   - F. **Mouldings**, their form and decoration.
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A

# HISTORY OF ARCHITECTURE

ON THE

# COMPARATIVE METHOD.

## PART I.

## GENERAL INTRODUCTION TO THE HISTORICAL STYLES.

"Deal worthily with the *History of Architecture* and it is worthy to take its place with the History of Law and of Language."—FREEMAN.

IN introducing this Comparative treatment of Historical Architecture, we propose to give a general outline sketch of the course which the art has taken up to the present time in Europe, also in those countries, such as Egypt and Assyria, which have influenced that development.

In Architecture we should be led to include every building or structure raised by human hands. Architecture is here defined as construction with an artistic motive: the more the latter is developed, the greater is the value of the result.

The first habitations of man were undoubtedly those that nature afforded, such as caves or grottoes, which demanded little labour on his part to convert into shelters against the fury of the elements, and attacks from his fellows or wild animals.

As soon as man rose above the state of rude nature, he naturally began to build more commodious habitations for himself, and some form of temple for his god. Such early forms are given under the heading of Prehistoric Architecture.

To pass, however, at once into Historic times, we find that in

Egypt a system of architecture prevailed which consisted of a massive construction of walls and columns, in which the column closely spaced, short, and massive, carried lintels, which in their turn supported the flat beamed roof. In Assyria, the development of brick construction with the consequent evolution of the arch and vault was due to the absence of more permanent building materials, and the influence of Egyptian and Assyrian architecture on the architecture of Greece is apparent in many directions. Grecian architecture is considered by many to have had its origin in the wooden hut or cabin formed of posts set in the earth, and covered with transverse beams and rafters, and this was the type which was developed in the early Mycenæan period into the *prodomus* of the Greek house. This timber architecture, copied in marble or stone, was naturally at first very simple and rude; the influence of the material, however, was soon felt, when the permanence and value of stone aided in the growth of the art. It should be noted, however, that many writers hold that Greek architecture is developed from an early stone type. As civilization and technical skill, moreover, advanced, the qualities of refinement in detail and proportion were perceived, and the different orders of architecture — Doric, Ionic, and Corinthian (No. 23) — came into existence. (By the word "order" we mean certain methods of proportioning and decorating a column, and the part it supports, *i.e.*, the entablature.) These "orders" are the characteristic features of Greek architecture, and the beauty and grace with which they were treated, and the artistic and mathematical skill with which they were constructed, illustrate the keen artistic temperament of the Greeks.

Greece eventually succumbed to the conquering Romans who, however, adopted their architecture, and in many cases employed Greek artists in the erection of their buildings. While borrowing this trabeated architecture, they added the use of the arch, which they had probably already learnt to construct from the Etruscans, the ancient inhabitants of Central Italy.

This dualism is a very important fact to remember, because, as we shall see, it eventually ended in the exclusion of the beam altogether, and in the employment of the arch alone, throughout the entire constructive system of the building. The *column and arch* were used conjointly by the Romans for some time, good examples being the Colosseum at Rome (Nos. 40 and 41), and the Triumphal Arches (Nos. 42 and 43). In the numerous buildings which the Romans erected, we at once notice that the column has, in the generality of cases, become merely a decorative feature, the actual work of support being performed by the piers of the wall behind, connected together by semicircular arches.

As time went on, however, such practical people as the Romans could not but discard a feature which was no longer utilitarian, so the column even as a decorative feature disappeared, and the arcuated system it had masked was exposed.

Columns, when used, were now again constructive, as in many of the great basilicas, in which the semicircular arches spring directly from their capitals. As the Romans conquered the whole of the then known world, that is to say, most of what is now known as Europe (No. 29), so this feature of the semicircular arch was introduced in every part, by its use in the settlements which they founded. Roman architecture was prevalent in Europe in a more or less debased form up to the tenth century of our era, and is the basis on which European architecture is founded. The gradual breaking up of the Roman Empire, the formation of separate European states, and other causes which we shall enumerate separately, led to many variations on this semicircular arched style, both in construction and decoration.

The transition commenced in the tenth, eleventh, and twelfth centuries, when the later Romanesque, so called as being derived from the Roman style, was in vogue. Constructive necessity, aided largely by inventive genius, led, in the latter part of the twelfth century, to the introduction of the pointed arch.

The pointed arch is the keynote of what is known as the Gothic or pointed style, which prevailed throughout Europe during the thirteenth, fourteenth, and fifteenth centuries, when those glorious cathedrals and churches were erected, which form the most emphatic record of the religious feeling and character of the Middle Ages.

We may broadly summarize past styles of architecture as being divided into two great types, each depending on a great constructive principle, and we may place any style yet devised under one of these divisions, which are: (1) the *Classic*, or the architecture of the beam, and (2) the *Gothic*, or the architecture of the arch.

The early styles, including Greece, belong to the former. Roman architecture is a composite transition style, whose goal, if unchecked, would seem to have been the combination of the round arch and dome that we see in the great examples of the Byzantine style. It was left to the Gothic style to formulate a complete system of arcuated construction, the working out of which was marvellously alike in all countries. It was a style, moreover, in which a decorative system was closely welded to the constructive, both uniting to reflect a more intense expression of its age than had, perhaps, hitherto been achieved in previous architecture.

The revival of the arts and letters in the fifteenth century was

a fresh factor in the history of architecture. The condition of Europe at that period was one of ripeness for a great change, the Gothic system, whether in architecture or in civilization regarded as a whole, may fairly be said to have culminated. Its latest works were tinged by the coming change, or showed signs of becoming stereotyped by the repetition of mechanical forms.

The new force was the belief that old Rome had been wiser and more experienced than the then existing period, and the result was the earnest study of every Classic fragment, whether of art or literature, that had been preserved or could be recovered. For some three centuries this belief held good, till by the opening up of Greece to travel, the tradition was modified by the admission of Grecian remains to an equal or supreme place, beside or above those of Rome.

This second phase had not, however, an equal success for divers reasons; a reaction was at hand in favour of mediæval ideals, whether in the church, art, or the State.

A conscious effort was then made—the most earnestly in England—to modify the current that had been flowing since the year 1500. Some of the results of this attempt may be traced by the student wise enough to follow up the clues indicated in our concluding pages. In acquainting himself with the buildings given in those lists, he may feel that few of the diverse elements of our complex civilization, at the beginning of the twentieth century, have failed to find some architectural expression.



# GENERAL REFERENCE BOOKS.

## ENCYCLOPÆDIAS, DICTIONARIES, ETC., AND WORKS NOT CHIEFLY CONCERNED WITH THE ILLUSTRATION OF A PARTICULAR PERIOD OR COUNTRY.

*N.B.—Lists of Reference Books for special periods and styles are given throughout the book.*

"Architectural Association Sketch Book." Folio. 1867–1900.

Upwards of 28 vols. of this valuable publication have been issued since 1867. Each volume contains 72 plates, chiefly of measured drawings of English work.

Bosc (E.).—"Dictionnaire raisonné d'Architecture." 4 vols., 4to. Paris, 1877–1880.

Brault (E.).—"Les Architects par leurs œuvres." 3 vols. Paris, 1892–1893.

D'Agincourt (S.).—"History of Art by its Monuments." Translated from the Italian by Owen Jones. Folio. 1847.

"Dictionary of Architecture, issued by the Architectural Publication Society." With Detached Essays and Illustrations. 6 vols., folio. 1848-1892.

Durand (J. N. L.).—"Parallèle des Edifices de tout genre." Paris, 1800.

Fergusson (J.).—"History of Architecture in all Countries." 5 vols., 8vo. 1893, etc.

Fletcher (B. F.).—"The Influence of Material on Architecture." Imperial 8vo. 1897.

Gailhabaud (J.).—L'Architecture du V. au XVII. siècle." 5 vols., folio and 4to. Paris, 1869–1872.

Gailhabaud (J.).—"Monuments Anciens et Modernes." 4 vols. 4to. Paris, 1850.

Gwilt (J.).—"Encyclopædia of Architecture." 8vo. 1900.

"Handbuch der Architektur." Comprising a number of volumes upon the History and Practice of Architecture. Darmstadt.

Milizia (F.).—"Lives of Celebrated Architects." 2 vols., 8vo. 1826.

Parker (J.).—"Glossary of Terms used in Architecture." 3 vols., 8vo. 1850.

Perrot (G.) and Chipiez (C.).—"History of Ancient Art." 12 vols., 8vo. 1883–1894.

Planat.—"Encyclopédie d'Architecture et de la Construction." 11 vols. Paris.

"Royal Institute of British Architects' Transactions." 1853 *et seq.*

Sturgis.—"A Dictionary of Architecture and Building." Vols. 1 and 2 4to. New York, 1901.

Vasari (G.).—"Lives of the most Eminent Painters, Sculptors and Architects." Edited by Blashfield. 4 vols., 8vo. 1897.

Viollet-le-Duc (E. C.).—"Dictionnaire de l'Architecture." 10 vols., 8vo. Paris, 1859.

Viollet-le-Duc.—"Entretiens sur l'Architecture." 3 vols. Paris, 1863. There is an English translation by B. Bucknall, entitled "Lectures on Architecture." 2 vols., 8vo. 1877–1881.

Weale (J.).—"Dictionary of Terms used in Architecture." 12mo. 1891.

# PREHISTORIC ARCHITECTURE.

"Study mere shelter, now for him, and him;
Nay, even the worst—just house them! Any cave
Suffices; throw out earth! A loop hole? Brave!
. . . But here's our son excels
At hurdle weaving any Scythian; fells
Oak and devises rafters; dreams and shapes
His dream into a door post, just escapes
The mystery of hinges. . . .
The goodly growth
Of brick and stone! Our building-pelt was rough,
But that descendants' garb suits well enough
A portico-contriver.
* * * * *
The work marched: step by step—a workman fit
Took each, nor too fit—to one task, one time—
No leaping o'er the petty to the prime,
When just the substituting osier lithe
For brittle bulrush, sound wood for soft withe,
To further loam-and-rough-cast work a stage,
Exacts an architect, exacts an age."—BROWNING.

THE origins of architecture, although lost in the mists of antiquity, must have been connected intimately with the endeavours of man to provide for his physical wants. It has been truly said that protection from the inclemency of the seasons was the mother of architecture. According to Vitruvius, man in his primitive savage state began to imitate the nests of birds and the lairs of beasts, commencing with arbours of twigs covered with mud, then huts of dried turfs and branches. Other writers indicate three types of primitive dwellings—the *caves* or rocks for those occupied in hunting or fishing, the *hut* for the agriculturist, and the *tent* for those such as shepherds leading a pastoral or nomadic life.

Structures of the prehistoric period, although interesting for archæological reasons, have little or no architectural value, and will only be lightly touched upon.

The remains may be classified under

i. **Monoliths,** or single upright stones, also known as *menhirs*, a well-known example being that at Carnac, Brittany, which is 63 feet high, 14 feet in diameter, and weighs 260 tons.

ii. **Dolmens** (Daul, a table, and maen, a stone), consisting of

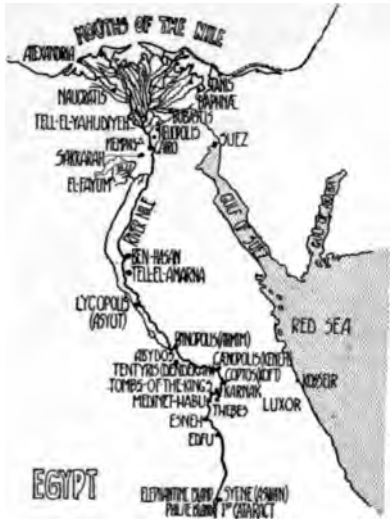
one large flat stone supported by upright stones. Examp'es near Maidstone and other places in England, Ireland, Northern France, the Channel Islands, and India.

iii. **Cromlechs,** or **circles of stone,** as at Stonehenge, Avebury (Wilts), and elsewhere, consisting of a series of upright stones arranged in a circle and supporting horizontal slabs.

iv. **Tumuli.** The burial mounds were probably prototypes of the Pyramids of Egypt and the beehive huts found in Wales, Cornwall, Ireland, etc. That at New Grange (Ireland) resembles somewhat the Treasury of Atreus at Mycenæ (No. 14).

v. **Lake Dwellings,** consisting of wooden huts supported on piles, and discovered in the lakes of Switzerland, Italy, and Ireland, and so placed for protection against attacks.

These primitive or prehistoric remains have little constructive sequence, and are merely indicated to show from what simple beginnings the noble art of architecture was evolved, although unfortunately the stages of the evolution cannot be traced, owing to the fact that the oldest existing monuments of any pretension, as in Egypt, belong to a high state of civilization.




2.

# EGYPTIAN ARCHITECTURE.

"Those works where man has rivalled nature most,
Those Pyramids, that fear no more decay
Than waves inflict upon the rockiest coast,
Or winds on mountain steeps, and like endurance boast."

## 1. INFLUENCES.

i. **Geographical.**—The civilization of every country has been, as we hope to be able to show, largely determined by its geographical conditions. The characteristic features of the land in which any race dwells shape their mode of life and thus influence their intellectual culture.

On referring to the map (No. 2) we find that Egypt consists of a sandy desert with a strip of very fertile country on the banks of the Nile. Egypt was the only nation of the ancient world which had at once, easy access to the Northern Sea, or Mediterranean, as well as to the Eastern, or Arabian Sea; for by way of the Red Sea, Egypt always commanded an access to both these highways. The consequence was that Egypt had outlets for her own productions and inlets for those of foreign nations. The possession

of the Nile, moreover, was of immense advantage, not only on account of its value as a trade route, and as a means of communication, but also because its waters were the fertilizing agents that made desert sands into fruitful fields. It was on the banks of this classic river that the ancient cities of the Egyptians were naturally placed: here, therefore, are found the chief remains of the Tombs, Temples, and Pyramids.

ii. **Geological.**—In this section throughout the volume we shall endeavour to trace that influence on the architecture of each country which the materials at hand had in the development of their different styles. The natural productions of a country, we shall find, whether wood, brick, or stone, determine to a large extent its style of art.

In Egypt under this heading we should notice the abundance of limestone that existed in the north, of sandstone in the central region, and of granite in the south. The latter is principally found near Assuân (Syene), and is called Syenite. This hard and lasting building material largely influenced the architecture of the country, and to its durable qualities is due the fact that we have so many remains. Bricks were also employed, but were generally faced with some harder material. We may also note the absence of wood of a kind suitable for building, for we find that only small forests of palm and acacia existed.

iii. **Climate.**—The climate is equable and of even temperature, snow and frost are wholly unknown, while storm, fog, and even rain are rare, which accounts to a large extent for the good preservation of the temples. Egypt has been said to have but two seasons, spring and summer. The climate was thus of importance in developing the qualities of the architecture, admitting of simplicity of construction, for though it demanded some protection against heat there was no necessity to provide against inclement weather.

iv. **Religion.**—A close connection between religion and architecture is everywhere manifest at this epoch. The priesthood was powerful, possessed of almost unlimited authority, and equipped with all the learning of the age. The religious rights were traditional, unchangeable, and mysterious. A tinge of mystery is one of the great characteristics of the Egyptian architecture as well in its tombs as in its temples. The Egyptians attained to a very high degree of learning in astronomy, mathematics, and philosophy; the remains of their literature have been preserved to us in the papyri, or MSS. written on paper made from the pith of the papyrus. In theory the religion was monotheistic, but in practice it became polytheistic; a multiplicity of gods was created by personifying natural phenomena, such as

the sun, moon, stars, etc., as well as the brute creation. The Egyptians were strong believers in a future state; hence their care in the preservation of their dead, and the erection of such everlasting monuments as the Pyramids. Herodotus informs us that the dwelling-house was looked upon by them as a mere temporary lodging, the tomb being the permanent abode.

> "What availed thee thy other buildings?
> Of thy tomb alone thou art sure.
> On the earth thou hast nought beside;
> Nought of thee else is remaining."

**v. Social and Political.**—Under this heading we find that a vast population was employed on public works, for which they probably received no other pay but their food; the state of cheap labour thus produced was eminently favourable to the execution of great public works. In addition there existed a centralized despotic government, which perhaps more than any other form favours the execution of monumental works. It is assumed by some that the spare time which occurs during the annual floods enabled the population to be employed on these state buildings. It is also possible that the transport of stone required for the Pyramids, etc., was effected by means of rafts floated down at this season. During the reign of Rameses II. the captives and foreigners, who had largely increased, were put to enforced labour upon the public works, and in the first chapter of the book of Exodus we learn how the natives viewed with alarm the growing numbers and power of these strangers.

**vi. Historical.**—Egyptian civilization is the most ancient of any of which we have a clear knowledge; its history is partly derived from Holy Scripture and from Greek and Roman authors, but more particularly from the Egyptian buildings, by which it can be traced back for more than 4,000 years B.C. The Pyramids are thought to be a thousand years older than any building which has yet been discovered in Western Asia, the subject of our next division. The Kings or Pharaohs (from the title "Peraa" = "great house") have been arranged in thirty dynasties, extending down to B.C. 340. These have been based on the list of Manetho, an Egyptian priest who lived B.C. 300, and compiled a history of Egypt in Greek. The history of Egypt may be divided into the following periods:

1. *The Ancient Empire* (B.C. 4700–3000) comprises the first ten dynasties, with Memphis as capital.
2. *The Middle Empire* (B.C. 3000–2100) comprises the eleventh, twelfth, and thirteenth dynasties, with Thebes as capital.

3. *The New Empire* (B.C. 1700-324) comprises the eighteenth the thirtieth dynasty.
4. *The Revival* (B.C. 324-A.D. 330) comprises the Ptolema Macedonian and Roman period.

The nineteenth dynasty, founded by Rameses I. (B.C. 1400-136 may be taken as the most brilliant epoch of Egyptian art. Tl evidence of his greatness, and that of his grandson, Rameses I (B.C. 1333-1300), as builders, is to be seen in the Temples Thebes and elsewhere. The twenty-sixth dynasty takes us to th time when the country was conquered by the Persians in B.C. 52 from whom it was wrested by the great Grecian general, Ale ander the Great, in B.C. 332. On Alexander's death and th division of his empire Egypt passed to Ptolemy, one of Ale ander's generals, who founded a dynasty that ruled from B.C. 32 to B.C. 31. After the wars which ended in the death of Cleopatr Egypt passed, as did nearly the whole of the then known world into the hands of the conquering Romans, and became a Roma province. On the spread of Mahometanism, in A.D. 638, Egyp was conquered by the Arabs, who left important monument (see Saracenic Architecture). In A.D. 1517 it became a part o the Turkish dominions.

## 2. ARCHITECTURAL CHARACTER.

In the valley of the Nile, the land which is the gift of a grea river, and the seat of the most ancient civilization, a primitive architecture of mud or puddled clay and bundles of reeds changed in later times to a style of stone and granite.

The primitive structure was composed of bundles of reeds bound together and placed at intervals vertically in the ground, the angle bundles being strengthened. Joining these reeds, at the top, were laid horizontally other bundles, which bound the heads of the uprights together. The origin of the characteristic cornice is held to be due to the pressure of the clay, of which the primitive roofs were constructed, on the upright reeds, which formed the framework of the walls. This formed the slightly projecting cornice, the reeds keeping the rammed clay in a projecting position and allowing the curve to be terminated by a flat fillet which gave the level of the terrace. The jambs and lintels of the doors and windows were made of reeds in the humbler dwellings and of palm trunks in those of more pretension.

Here, then, is seen a fair and likely prototype of the construction of an Egyptian wall, the forms of which are more suitable to a structure of rushes overlaid with mud or puddled clay than to one consisting of large stones. Still, an important point



3. The Sphinx, Cairo. Old Kingdom 2800 BC - 2600 BC

With the Pyramids in the background.





remains—the batter or slope which is invariably given to the walls. Viollet-le-Duc's theories as to the origin of this batter do not point to the influence of material, and this feature is alleged by him to have been introduced at a later stage, having been promulgated by a royal decree. He infers the custom to have been derived from the Pyramids, which were found to remain undisturbed during earthquakes, while straight-sided houses were upset, owing to the centre of gravity being placed outside the wall. It seems, however, more reasonable to attribute it to a mud origin, for nothing would be more natural, in order to strengthen such buildings, than to slightly tilt the bundles of reeds towards the interior, forming as it were an arch, a treatment which in any other material scarcely seems to be feasible.

Proceeding to the internal architectural features of the style, a very distinct recollection of the primitive reeds tied together at intervals, and crowned with the lotus bud, is found in the later granite column and capital (No. 9 L, M). During the Theban kingdom especially (B.C. 5000—B.C. 2300) examples in stone of capitals and columns derived from timber and reed originals are frequent. At Beni-Hasân the pillars represent a bundle of four reeds or lotus stalks bound together near the top and bulging above the ligature, in imitation of a lotus bud, so as to form a capital. Such a pier must evidently have been originally employed in wooden architecture only, and the roof which it supports, in this instance, represents a light wooden construction having the slight slope necessary in the dry Egyptian climate.

This type of column was largely used in later Egyptian times in a more substantial lithic form (No. 9 M), and in conjunction with the hollow-formed capital of the bell type (No. 9 L), of which the earliest example appeared in the eighteenth dynasty.

In fact, throughout, although materials changed, the forms of the early reed and clay construction were adhered to; and the endeavour of the conservative Egyptian was to reproduce in stone and granite superimposed in layers the appearance assumed in the early reed and mud type.

The surface decoration executed on the later granite buildings (No. 9 P), apparently came from the "sgraffito" work on the earlier mud walls. The surfaces of such walls could not be modelled or carved with projections of high relief, but their flat surfaces, when plastered, provided an admirable field for decoration and for instruction through the use of hieroglyphics. The Egyptian system of decoration consisted in not contravening the form adopted, but clothing it with a kind of drapery more or less rich, which never presented a projecting outline, but contented

itself with enveloping the geometric form as would an embroidered stuff, or a diapered covering.

Remarkable then as are the arts of Egypt, it is clear that the spirit of criticism and logical method is wanting; and that traditional forms, hallowed by long use, were clung to and reproduced when the method of building which suggested them had been replaced by other systems. Egyptian art proceeds on an uninterrupted line or course of tradition, and when necessity dictates a change in the methods of construction, or in the materials, the immutable form is not thereby affected, but is perpetuated in spite of novel conditions.

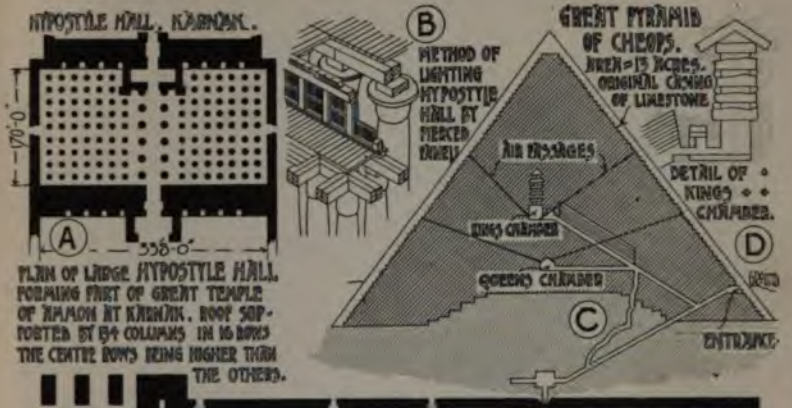
The principal remains of ancient Egyptian architecture are the Pyramids (or royal tombs of the kings) and the temples. Contrast in this respect Egypt with Assyria, where the palaces of the kings are the chief remains. The Egyptian wall-paintings and sculptures, jewellery, bronze implements and utensils, which have been unearthed from their temples or tombs, show that the race had attained to a high degree in art. As regards their architecture, the impression which forms itself in the mind of the spectator is that here was building for eternity; for all the remains have a character of immense solidity, and, as a general rule, of grand uniformity.

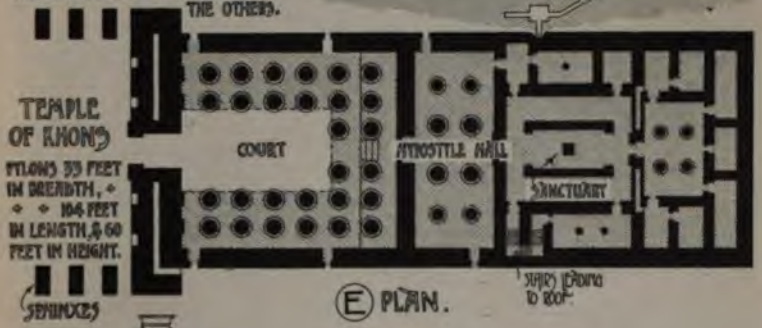
The Pyramids (No. 3) are the most extravagant of all ancient buildings in many ways. The relative return in impressiveness and the higher beauties of the art is comparatively small when compared with the amount of labour, expense, and material used in their erection.

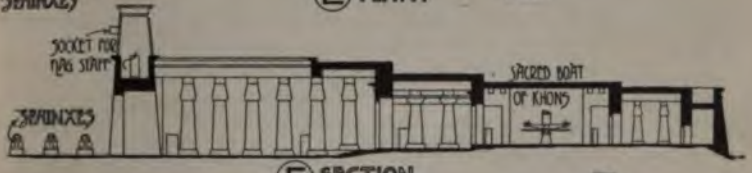
The finishing and fitting of such large masses of stone is remarkable. Many of the blocks, perfectly squared, polished and fitted, are at least 20 feet long by 6 feet wide. How such masses were quarried, moved and transported by land and water 500 or 600 miles, and finally accurately fixed in splendid masonry by a people unacquainted with iron and destitute of modern engineering appliances is a problem as insoluble as the Sphinx.

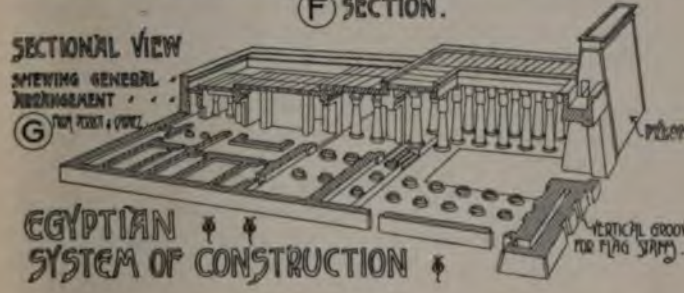
The Architectural Character of the temples is striking and characteristic (No. 4). The buildings decrease in height from front to back, and form a disconnected collection of various sized structures, often built at different times, and thus form a direct contrast to the harmonious whole of a Greek temple, which is all comprised within one "order" of columns, and which is distinctly both in appearance and reality one building.

The character of the tombs consists in the planning of their mysterious chambers and corridors, which, covered with paintings and hieroglyphics, produce an effect of gloom and solemnity on the spectator.


HYPOSTYLE HALL, KARNAK.
B
METHOD OF LIGHTING HYPOSTYLE HALL BY PIERCED SLABS.
GREAT PYRAMID OF CHEOPS.
AREA = 13 ACRES.
ORIGINAL CASING OF LIMESTONE.
AIR PASSAGES
DETAIL OF KING'S CHAMBER.
KING'S CHAMBER
QUEEN'S CHAMBER
D
C
ENTRANCE
A
PLAN OF LARGE HYPOSTYLE HALL FORMING PART OF GREAT TEMPLE OF AMMON AT KARNAK. ROOF SUPPORTED BY 134 COLUMNS IN 16 ROWS THE CENTRE ROWS BEING HIGHER THAN THE OTHERS.


TEMPLE OF KHONS
PYLONS 33 FEET IN BREADTH, 104 FEET IN LENGTH, & 60 FEET IN HEIGHT.
SPHINXES
COURT
HYPOSTYLE HALL
SANCTUARY
STAIRS LEADING TO ROOF
E PLAN.


SOCKET FOR FLAG STAFF
SPHINXES
SACRED BOAT OF KHONS
F SECTION.


SECTIONAL VIEW
SHEWING GENERAL ARRANGEMENT
G
PYLON
VERTICAL GROOVES FOR FLAG STAFFS
EGYPTIAN SYSTEM OF CONSTRUCTION

## 3. EXAMPLES.

### THE GREAT SPHINX

(No. 3), whose date is unknown, is situated near the great pyramids, in the centre of an ancient stone quarry, and is a natural rock cut to resemble a Sphinx, with rough masonry added in parts. An Egyptian Sphinx (No. 9) had the head of a king, a hawk, a ram, or more rarely a woman, on the body of a lion. The dimensions of the Great Sphinx, which represents a recumbent lion with the head of a man, are as follows: it is 65 feet high by 188 feet long, the face is 13 feet 6 inches wide, and the mouth 8 feet 6 inches long. Greatly mutilated, it is still a marvel, as it has been throughout the ages. The symbol for an insoluble problem, it is, and probably ever will be, a mystery. The original builders are unknown; it was excavated in 1816 by Captain Cariglia, who found a temple between the paws.

### THE GREAT PYRAMIDS

(or Royal Tombs) at Gizeh, near Cairo, were all erected during the fourth dynasty (B.C. 3766?–3566), and are among the earliest remains of Egyptian architecture.

The site of ancient Memphis, the oldest city of Egypt, and the pyramids of Sakkarah, older than those of Gizeh, are also near Cairo.

A large number of pyramids have been discovered, but the most remarkable are those at Gizeh, near Cairo.

The **first** or Great Pyramid (Nos. 3 and 4 C, D) was erected by **Cheops** (Khufu) (B.C. 3733–3700).

The **second** Pyramid was erected by **Cephron** (Khafra) (B.C. 3666–3633).

The **third** Pyramid by **Mycerinc**s (Menkhara) (B.C. 3633–3600).

They were built during their lifetime by these kings of the fourth dynasty as their tombs. The governing idea was to secure immortality for the king by the preservation of his mummy.

The principal one is that by **Cheops**, as mentioned above. Roughly speaking, it is square on plan, 760 feet each way, its area being 13 acres, *i.e.*, twice the extent of St. Peter's, Rome, or equal to the size of Lincoln's Inn Fields, in London. Each of the faces of the pyramid is an equilateral triangle laid sloping, and meeting in a point. The height is 484 feet. The angle which



5. Tomb at Beni-Hasân, Egypt. Middle King 2000-1800 BC

Prototype of the Greek Doric Order.



the sides make with the ground is 51 degrees 51 minutes. The entrance is on the north side, and the sides face directly north, south, east, and west, as in all the pyramids. The entrance (No. 4 C, D) is 47 feet 6 inches above the base; from which it is reached by means of an earthen embankment; it first slopes downwards, and afterwards reascends towards the heart of the pyramid, where the king's chamber is situated (No. 4 D). The upper part is elaborately constructed with stones one above the other, and the entrance is protected by a massive stone acting as a portcullis, fitting into a rebate or recess, and weighing from 50 to 60 tons. In this chamber was placed the sarcophagus of the king, containing his embalmed body, and two air channels led to the outer face of the pyramid for ventilation.

There were two other chambers in the Great Pyramid, one connected with a passage leading off that to the king's chamber, and one below the ground.

The Pyramid was originally cased in to a sloping face with limestone, but this has now disappeared, showing the original stepped surface in tiers of 4 feet, on which the casing was placed, and which still exists in the pyramid of Mycerinos.

## TOMBS.

Beyond these royal tombs are others for private individuals.

(*a.*) In the Ancient Empire the *Mastabas* were rectangular structures with their sides sloping at an angle of 75 degrees with the horizon and with flat roofs. They were divided into three parts:—

i. The *outer chamber*, in which were placed the offerings to the "Ka" or "double" and which had its walls decorated with representations of festal and other scenes. Such are valuable from an historical standpoint.

ii. *Inner secret chamber*, known as the "serdab," containing statues of the deceased.

iii. A *well* of great depth, leading to the chamber containing the sarcophagus with its mummy.

(*b.*) In the Middle Empire tombs were either of the Pyramidal form, many examples being found at Abydos, or were rock-cut, as in the vertical cliffs on the west bank of the Nile valley (No. 5).

(*c.*) During the New Empire tombs were rock-cut and structural and in many cases took the form of *Sepulchral temples*, as at Dêr-el-bahri and Medinet-Habou.

The **Tombs at Beni-Hasân** in Central Egypt form a remarkable group of these rock-cut tombs. There are 39 in all, arranged

in a row in the rocks as shown (No. 5). They were made during the twelfth dynasty (B.C. 2466–2233), a period which was particularly remarkable for the progress of the arts of peace.

The design of the great entrance with columns is generally considered to be derived from a wooden origin, and to be a prototype of the Greek Doric column.

The columns are slightly fluted and have an entasis, while the projecting roof has false stone beams, carved to imitate wooden ones.

The **Tomb of Meneptah** at Thebes (B.C. 1300–1266) is one of the most important, consisting of chambers and corridors splendidly decorated, descending in a sloping direction into the mountain, and ending in a circular pit which leads to the mummy chamber.

## TEMPLES.

The purposes for which they were used and their component parts are important.

They are not like our churches, which are places of worship for the people, nor yet like Greek temples, although in this latter case the worshippers possibly stood outside; but they were sanctuaries where only the king and priests penetrated.

Mysteries and processions formed a great part of the religious services.

The student is referred to Mr. Lockyer's theories as to the orientation of temples with regard to the particular stars.

The "mammeisi" (dedicated to the mysterious accouchement of Isis) were temples of one small chamber with statue and altar as at Elephantine, approached by a flight of steps, and in this form are generally considered to be the prototypes of the Greek temples. The more usual type of temple consisted of chambers for the priests, courts, colonnades, and halls, all within a garden or court surrounded by a high wall.

In order that the student may understand the general distribution of the parts of an Egyptian temple, a plan is here given of the **Temple of Khons** at Karnac (No. 4), on the eastern bank of the Nile, which may be taken as a fair example of the plan of an Egyptian temple.

The entrance to the temple was between "pylons," or massive sloping towers, on each side of the gateway (No. 6). In front of the entrance were sometimes placed obelisks, and again in front of these an avenue of sphinxes, forming a splendid approach to the temple. This entrance gave access to the large outer court-yard, which was open to the sky in the centre, and therefore



6. TEMPLE AT PHILÆ. - Philensis - 300 BC

Entrance Court, showing Pylons.

called "hypæthral" (from two Greek words, meaning "under the air"). This courtyard was surrounded by a double colonnade on three sides, and led up to the hypostyle hall, in which the light was admitted by means of a clerestory above, formed by the different height of the columns (No. 4 B). "The mass of the central piers, illumined by a flood of light from the clerestory, and the smaller pillars of the wings gradually fading into obscurity, are so arranged and lighted as to give an idea of infinite space. Moreover, the beauty and massiveness of the forms, and the brilliancy of their coloured decorations, all combine to stamp such halls as the greatest of man's architectural works" (Fergusson). In later times the hall was lighted (No. 7) over low screen walls placed between the columns. Beyond this is the cell, surrounded by a passage, and at the rear is a smaller hall. These last chambers must have all been dark or imperfectly lighted.

The whole collection of buildings forming the temple was surrounded by a tall blank wall, as high as the buildings themselves.

The gateway in this example, at the commencement of the avenue of sphinxes, was erected by the Ptolemys, and, like many Egyptian buildings, differs in axis of plan from the direction of the main building.

(*a*.) At **Thebes**, the capital of Egypt during the eighteenth and nineteenth dynasties (B.C. 1700–1200), are some of the most important remains, occupying an area 2¼ miles north to south, and 3½ miles east to west.

Among these are:

The Temples at **Karnac**, on the site of ancient Thebes, and **Luxor**, on the Eastern bank.

The Temple of **Medinet-Habou** and the **Rhamession** (B.C. 1500), on the Western bank.

The Temple at **Karnac** is the grandest; it extends over an area 1,200 feet in length by 360 feet in width, and is connected with the Temple at Luxor by an avenue of sphinxes.

The general disposition of plan follows what has already been described, but in particular the grand hypostyle hall (No. 4 A) of 130 columns, which covers the same area as Notre Dame at Paris, is notable. The central avenue is 85 feet high, as compared to 147 feet at Amiens, and the columns are 12 feet in diameter. The smaller columns on either side are 42 feet in height and 9 feet in diameter.

The clerestory over the central columns is an early form of lighting more fully developed in the Gothic period.

The central columns have lotus capitals in blossom (No. 9, K L)

to admit the light more easily; the side columns have lotus-bud capitals, on which the light would fall (No. 9 M).

(*b*.) During the Greek and Roman period many temples were erected. Of these the temple at Edfou (B.C. 180–160) (No. 7) is one of the most important.

## OBELISKS

are monumental pillars, employed as an appendix to a temple. All were monoliths, *i.e.*, in one stone, square on plan, and tapering gently, with a pyramidal summit. The height was usually about nine to ten times as great as the diameter, the four faces were slightly rounded, and cut with hieroglyphics. The capping was of metal, for the groove into which it was fitted is in some cases still visible.

In Egypt obelisks were placed in pairs in front of the façade of the temple (No. 4 E, F). The quarrying and transport of such a mass of stone without the power of a steam-engine was an engineering feat of considerable skill.

Many obelisks were removed to Rome by the emperors, and at least twelve are in that city. That in the centre of the Piazza of St. John Lateran is the largest in existence, and is of red granite from Syene. It is 104 feet high, or with the pedestal 153 feet, weighs about 600 tons, is 9 feet square at the base, and 6 feet 2 inches square at the top.

Cleopatra's Needle on the Thames Embankment is an example. It is 68 feet 6 inches high, 8 feet square at the base, and weighs 180 tons.

## DWELLINGS.

All these have disappeared, being only built of wood or of sun-dried bricks. Houses are shown on paintings and sculptures which have come down to us, from which they appear to have had one, two, or three storeys.

In the absence of any authentic remains, an illustration of the Egyptian House is given (No. 8), conjecturally restored, and erected at the Paris Exhibition, 1889, by M. Charles Garnier. The design was founded on an ancient painting, and had a garden in front, laid out in a formal style, with fish-ponds. The house was divided by a corridor in the centre, giving access to the rooms. The staircase at the back led to a verandah, and also to a flat roof, extending over the whole length of the building. The upper part of the house was painted a bright yellow, and the long external wooden columns blue; the whole building being treated with colour.



7. TEMPLE AT EDFOU. – Ptolemaic 300-30 BC

Portico, showing light admitted over low screens between Columns.



8. An Egyptian House.– New Empire 1600 – 1085

As erected at the Paris Exhibition, 1889, by M. Garnier.

## 4. COMPARATIVE.

A. **Plans** of the temples have already been slightly compared with the Greek examples (page 50), and we have noticed that they were especially planned for inside effect. The hypostyle hall crowded with pillars, seemingly unlimited in size, and mysteriously illuminated from above, realized the grandest conceptions of Egyptian planning (No. 4). Externally we have the massive pylons to form their chief façade, a contrast being obtained by the slender obelisks which usually stood in front of them, while the approach was through an impressive avenue of innumerable sphinxes.

The erection of these temples was in progress during many centuries by means of continual additions. In this respect they resemble our own English cathedrals; as also in their disregard for symmetry, in the planning of one part in relation to another, seen especially in many of the later temples erected under the Ptolemys, the little temple on the island of Philæ being a notable instance. The walls, the pylons, and other features are placed on different axes, free from any pretence of regularity. The freedom and picturesqueness of grouping thus obtained in remarkable.

B. **Walls** were immensely thick; in the more important buildings they were of granite, in the less important of brick faced with granite.

The face of the temple walls slopes inwards or batters towards the top, which gives it a massive appearance (No. 6). Viollet-le-Duc traces this inclination to the employment of mud for the walls of early buildings. Columns, the especial feature of Greek work, do not appear on the outside; there is merely a massive blank wall crowned with a characteristic cornice, consisting of a large hollow and roll moulding. For the purposes of decoration, the walls, even when of granite, were generally covered with a fine plaster, in which were executed low reliefs, treated with bright colour (Nos. 6 and 9 P). Simplicity, solidity, and grandeur, qualities obtained by broad masses of unbroken walling, are the chief characteristics of the style.

C. **Openings** were all square-headed and covered with massive lintels. It is essentially a trabeated style, and the arch does not appear to have been used. Window openings are seldom found in temples, light being admitted by the clerestories in the earlier examples at Thebes, or over the low dwarf walls between the columns of the front row, as at Luxor, Edfu, Denderah, or Philæ (No. 7), which is peculiar to the Ptolemaic and Roman periods.

D. **Roofs** are composed entirely of massive blocks of stone laid on to the columns (No. 4 F). The roofs are flat, used for sitting

# EGYPTIAN ORNAMENT



FROM PERROT & CHIPIEZ, PETRIE &c.

(A) CONTINUOUS OR SPIRAL



(B¹) QUADRUPLE SPIRALS (B²)



FEATHER CORNICE



LOTUS FLOWER (D)

(C)



(E) LOTUS FLOWER



(F) LOTUS BUD

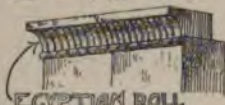


(G) HATHOR HEAD CAPITAL PILLAR



BASE OF COLUMN KARNAC (H)





(J) EGYPTIAN ROLL & BEAD



PALM CAPITAL (K)



COLUMN OF THOTHMES II KARNAC (M)



(N) A VULTURE WITH OUTSTRETCHED WINGS & A SYMBOL OF PROTECTION



COLUMN FROM THE GREAT HALL AT KARNAC (L)

(O) A SPHINX IN GRANITE.



(P) INCISED WALL DECORATION.





upon, or sleeping (No. 8), as in most Eastern countries, and forming terraces, where awnings could be spread. In the rock-cut temples the ceilings are sometimes slightly arched in form, and as at the tomb at Beni-Hasân the roofing is made to represent timber construction (No. 5).

E. **Columns.** The papyrus, a tall, smooth reed, and the lotus, a large white water-lily of exquisite beauty, offered many suggestions; the stalks were made to represent the column, and at intervals to appear to be tied by bands (No. 9). The columns were seldom over six diameters in height. The capitals are mostly derived from the lotus plant (No. 9 D, E, F), as follows:

(*a.*) The lotus bud (conventionalized), and tied round by stalks (No. 9 M).

(*b.*) The fully-grown lotus flower, which formed a bell-shaped capital, sculptured or ornamented with colour decoration (No. 9 L).

(*c.*) The "palm" capital, the main outline of the palms being painted (No. 9 K).

Besides these is found the Isis or Hathor-headed capital, as at Denderah and Philæ, where the capitals were made up of the heads of the goddess Isis on which rested a model of a pylon (No. 9 G).

F. **Mouldings** are few in number, viz., the hollow and bead generally used in conjunction, but the bead is also used by itself. The two together invariably crowned the upper part of the pylons (Nos. 6 and 9 J, M).

G. **Ornament** (No. 9) is an important feature in the style. The ornaments were symbolical such as the solar disc or globe, or the vulture with outspread wings, a symbol of protection (No. 9 N). Diaper patterns, spirals (No. 9 A, B) and the feather ornament (No. 9 C) were largely used. The Egyptians were masters in the use of colour, chiefly using the primary colours —blue, red, and yellow. The preparations of the surface for colour was as follows: The wall was chiselled smooth and covered with a thin layer of plaster or cement; after which a coloured wash was put over the whole. The figures or hieroglyphics were then drawn on with a red line by an artist, being corrected with a black line by the chief artist; the sculptor next incised the outline, rounding slightly the inclosed form towards its boundaries. The whole was then ready for the painter, who executed his work in the strong hues of the primary colours. (See the Egyptian Court at the Crystal Palace.) The hieroglyphics were often, however, incised direct on the granite and then coloured, as may be seen on the sculptures at the British Museum. These hieroglyphics were instructive as well as decorative, and it is from

them that we learn most of what we know of Egyptian history (No. 9 P).

The Egyptians possessed great power of conventionalizing natural objects such as the lotus plant, the symbol of the overflowing Nile (hence fertility or abundance), the palm, and others, which were copied or used as the *motif* for a design, being treated by the artists in a way suitable to the material in which they were working. The distinguishing, or essential, features of the natural object, or its class, thus passed by a process of idealizing into forms adapted for ornamentation.

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Visit the Egyptian Court at the Crystal Palace; also study the various kinds of capitals at the British Museum. The latter should be visited thoroughly, as it contains a most complete collection of Egyptian antiquities, which will give the student a more thorough knowledge of the style than the reading of many books, and in an infinitely shorter space of time.




10.

# WESTERN ASIATIC ARCHITECTURE.

"Babylon,
Learned and wise, hath perished utterly,
Nor leaves her speech one word to aid the sigh
That would lament her."—WORDSWORTH.

## 1. INFLUENCES.

**i. Geographical.**—On referring to the map (No. 10) it will be seen that the buildings, which we propose to discuss very shortly, are situated in the valley of the Tigris and Euphrates, a country which may be styled the cradle and tomb of nations and empires. The plain of Mesopotamia, once the seat of a high civilization, was irrigated from the Euphrates and Tigris, by innumerable canals, and was highly cultivated, supporting a huge population round Nineveh and Babylon. Now it has vegetation only in the wet season.

The earliest buildings of which we have knowledge were erected at the mouth of the great rivers draining the country. In this respect it compares with Egypt (No. 2), where the Pyramids

and earlier work were at Cairo, towards the mouth of the Nile, and the later work at Philæ, far inland. In Western Asiatic architecture the march of civilization spreads northwards from Babylon (the Gate of God) to Nineveh, while in Egyptian architecture it spread southward towards Edfou and Philæ, but in both cases it developed from the sea inland.

**ii. Geological.**—The whole district of Chaldæa or Lower Mesopotamia is alluvial, being formed of the thick mud or clay deposited by the two rivers, the Tigris and the Euphrates. This soil, containing no stone and bearing no trees, can be made into bricks, which thus became the building material. "Kiln dried" bricks, which were expensive, were only used for the facing, the general body of the walls being constructed of the ordinary sun-dried bricks.

In addition, bricks seem to have been glazed or vitrified, and used in different colours as a facing. As a cementing material, bitumen or pitch seems to have been used, applied in a heated state. It was obtained from bitumen springs found in the district, as at Is, on the Euphrates. Mortar, made of calcareous earth, was used in the latest times.

In Assyria, where stone was not scarce, the walls were also faced, on the inside and out, with alabaster or limestone slabs, on which were carved the bas-reliefs or inscriptions, which are so important from an historical point of view.

**iii. Climate.**—The unhealthy exhalations from the vast swamps in Chaldæa, and the swarms of aggressive and venomous insects which infest the entire region during the long summer, rendered elevated positions for the towns and palaces not only desirable, but almost essential. Moreover, during the rainy season torrents fall for weeks at a time.

Persia is for the most part a high tableland and has been described as a country of sunshine, gardens, and deserts, with a climate of extremes.

**iv. Religion.**—Religion was not favourable to constructive art among the Persians. The people were worshippers of the heavenly bodies, and of the powers of nature, such as the wind, thunder, the sun and the moon, etc. The number of omen tablets which have survived bear witness to their extreme superstition.

They worshipped Ormuzd as god of light and good, under the symbol of fire, as opposed to Ahriman, the god of darkness, and promoter of evil. They had consequently no images, and they had also no temples, because sacrifices were conducted in the open air. The essential element was therefore wanting for the rise and development of constructive art. In later times, when Egypt and the Greek colonies of Asia Minor became subject

to the Persians, Egyptian and Grecian artists were employed by the Persian kings.

**v. Social and Political.**—From what we know of their history, we judge that the Assyrians were a sturdy, warlike, and cruel people. In their battles, the conquering monarchs took thousands of prisoners, and these were employed in raising the enormous mounds mentioned hereafter. It has been calculated by Rawlinson, that the great mound of Koyunjik—which represents the palaces of Nineveh itself—would require the united exertions of 10,000 men for twelve years to raise the mound only, after which the palace would have to be built.

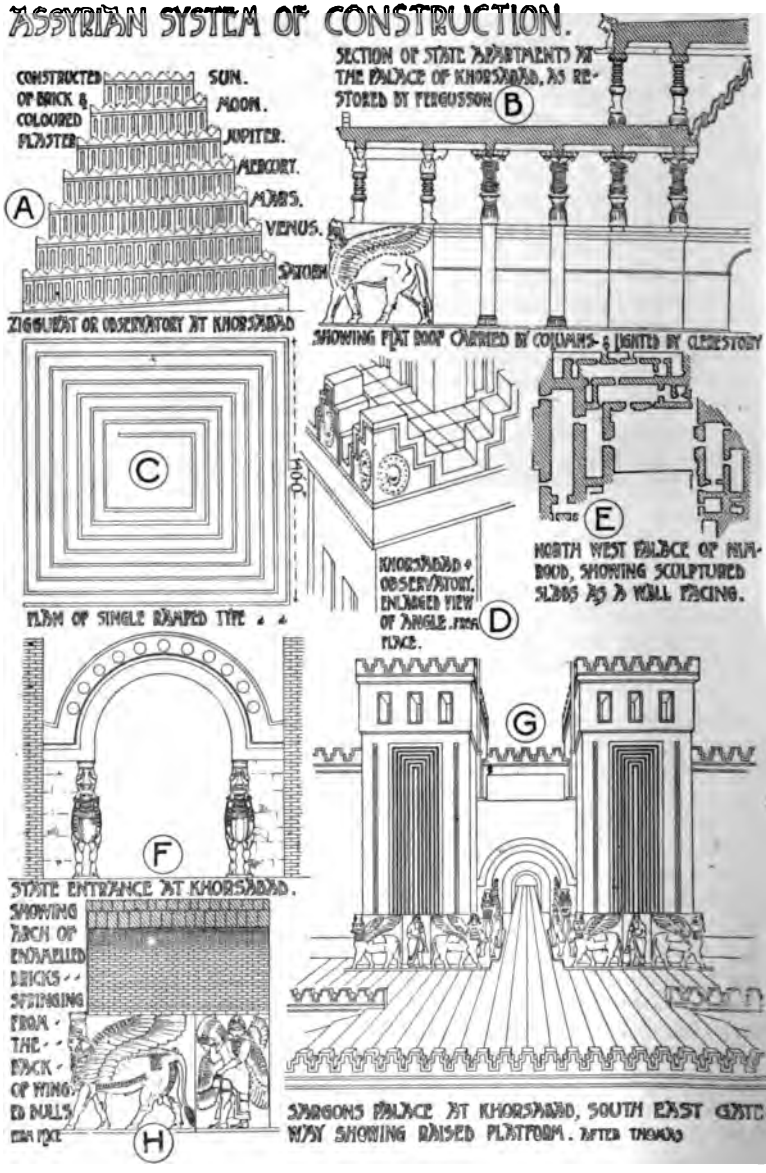
The Assyrian sculptures in alabaster exhibit considerable technical skill and refinement, while the repoussé pattern work on bronze bowls, shields, and gate fittings is also notable.

The "cuneiform" or arrow-headed inscriptions consist of groups of strokes in the form of wedges, placed upright and horizontally, hence the name. These characters were impressed on clay tablets or cylinders, while still moist, with a triangular ended instrument of wood, bone, or metal. Libraries of these strange MSS. were formed on a large scale, and by their translation our knowledge has been acquired.

The Persian astronomer-poet, Omar Khayyám, in his writings, indicates the national love of beauty and the influence exerted by environment and climate.

**vi. Historical.**—From the study of Assyrian history we can glean certain facts which considerably assist us in forming our divisions of the periods. The earliest Babylonian king mentioned in the cuneiform inscriptions was Eannadu, who reigned B.C. 4500. The empire thus founded gradually extended its dominions to the north, following the course of the great river Tigris. In B.C. 1700 Assyria, the northern part of the early Babylonian empire, asserted her independence and became the great power of Western Asia.

Of the Assyrian kings, among the more celebrated was Sargon (B.C. 722–705), who erected the great palace at Khorsabad. This Sargon was the first Assyrian king who came in contact with the Egyptian army, then in alliance with the Philistines, a combination which he defeated. The Assyrians conquered and occupied Egypt in B.C. 672, sacking the ancient city of Thebes in B.C. 666. Egypt, however, finally shook herself free from the Assyrian yoke. The destruction of Nineveh took place in B.C. 609, and the great Assyrian kingdom was divided among its conquerors, Assyria being handed over to the Medes. Babylon then took the leading place until it was finally conquered by the Persian general Cyrus, in B.C. 539, from which date it remained under


ASSYRIAN SYSTEM OF CONSTRUCTION.
CONSTRUCTED OF BRICK & COLOURED PLASTER.
SUN.
MOON.
JUPITER.
MERCURY.
MARS.
VENUS.
SATURN.
A
ZIGGURAT OR OBSERVATORY AT KHORSABAD
SECTION OF STATE APARTMENTS IN THE PALACE OF KHORSABAD, AS RESTORED BY FERGUSSON.
B
SHOWING FLAT ROOF CARRIED BY COLUMNS & LIGHTED BY CLERESTORY
C
PLAN OF SINGLE RAMPED TYPE
KHORSABAD OBSERVATORY. ENLARGED VIEW OF ANGLE.
D
E
NORTH WEST PALACE OF NIMROOD, SHOWING SCULPTURED SLABS AS A WALL FACING.
F
STATE ENTRANCE AT KHORSABAD.
ARCH OF ENAMELLED BRICKS SPRINGING FROM THE BACK OF WINGED BULLS
G
H
SARGONS PALACE AT KHORSABAD, SOUTH EAST GATEWAY SHOWING RAISED PLATFORM. AFTER THOMAS

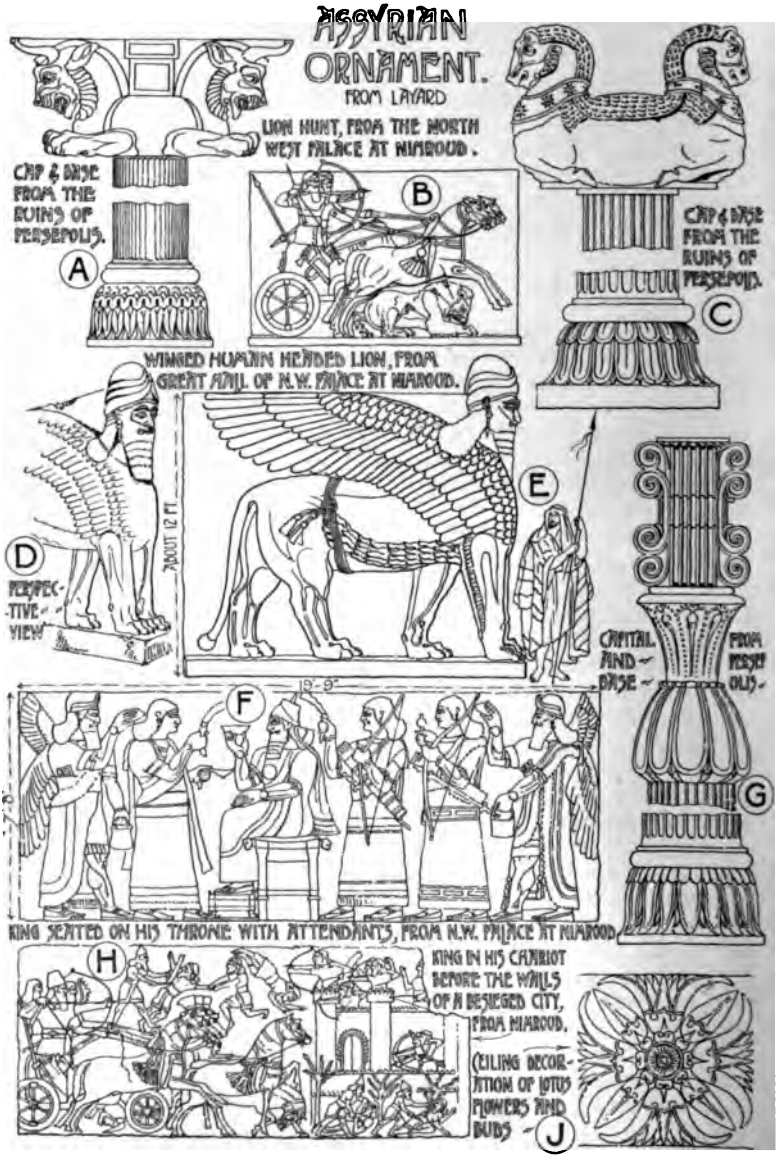
the rule of the Persians until the time of Alexander the Great, about B.C. 300, when it became a possession of the Greeks. About a thousand years after Alexander's invasion and short-lived conquest, the Arabs overran the country and settled there—Bagdad forming a new capital of great magnificence. Towards the close of the tenth century, the Turks, a barbarous people pouring in from the east, settled in the country, which is at the present moment in a desolate state owing to Turkish misrule.

## 2. ARCHITECTURAL CHARACTER.

The banks of the Tigris and Euphrates present only alluvial plains, where wood suitable for building is rare. The country, however, possesses an abundance of clay, which, being thrown into flat square moulds, beaten and compressed, and dried in the sun, gives the material of which were formed the huge platforms upon which temples and palaces were built. These immense platforms were faced with sun-dried bricks, and subsequently with kiln-burnt bricks, or in the later Assyrian period with stone slabs from the mountains that separate Assyria from Media. It will be perceived how the salient characteristics of the architecture may be explained by the nature of the materials at hand, for the walls being of brick, each unit, in general, is a repetition of its neighbour, and rarely of special shapes. The buildings composed of them could only be decorated by attached ornament, similar in principle to the mats and hangings we spread over the floors and walls we wish to hide.

The arch now first appears on the architectural horizon as applied to openings (No. 11). In some cases it is not a true arch, but one formed by corbelling or projecting horizontal courses; but, finally, the true arch was practised, being probably accidentally hit upon by the use of small units of materials, which must have had a direct influence, for the Chaldæans were unable to support the upper part of their walls, ceilings, or roofs upon beams of stone or timber, owing to the lack of these in suitable forms, and they had to devise some other means of arriving at the desired results. It is a general law, which study and comparison will confirm, that the arch was soonest discovered and most invariably employed by those builders who found themselves condemned by the geological formation of their country to the employment of the smallest units.

These arches, in the absence of piers, rested on thick and solid walls; and whether in the piercing of immense mounds by vaulted drains, or as prominently placed in the most careful and elaborate façades, the arch, forming an imposing entrance, and


ASSYRIAN
ORNAMENT.
FROM LAYARD
LION HUNT, FROM THE NORTH WEST PALACE AT NIMROUD.
CAP & BASE FROM THE RUINS OF PERSEPOLIS.
A
B
CAP & BASE FROM THE RUINS OF PERSEPOLIS.
C
WINGED HUMAN HEADED LION, FROM GREAT PAIL OF N.W. PALACE AT NIMROUD.
ABOUT 12 FT
D
PERSPECTIVE VIEW
E
CAPITAL AND BASE
FROM PERSEPOLIS
G
F
KING SEATED ON HIS THRONE WITH ATTENDANTS, FROM N.W. PALACE AT NIMROUD
H
KING IN HIS CHARIOT BEFORE THE WALLS OF A BESIEGED CITY, FROM NIMROUD.
CEILING DECORATION OF LOTUS FLOWERS AND BUDS
J

accentuated by a brilliantly coloured soffit, held a place of extreme importance.

In Chaldæa, isolated supports, such as are found in the hypostyle halls of Egypt and Persia, or in the naves of Greek temples and Latin basilicas, were untenable; the want of suitable stone put any such arrangement out of the question. The Chaldæans and Assyrians scarcely ever used stone constructively except as the envelope for a brick wall. The Persians, however, used stone which was found in abundance in the neighbourhood of their capitals. In the rocky country of Persia, at Susa and Persepolis, only the bones of their buildings remain, the enclosing walls of brick having disappeared. It is to be remarked how these Persepolitan halls show the influence of the Egyptian system of interior columns combined with Assyrian details (No. 11).

The bracket and scroll capitals of the columns at Persepolis and Susa retain much of the form of their wooden prototype, and demonstrate very clearly that a form which, applied to wood, is natural and inoffensive, becomes inappropriate when applied to stone (No. 12 A, C, G).

In regard to architectural character, Texier's description of the great mosque at Ispahan A. D. 1587–1629, might, it is believed, be applied with general accuracy to the principal buildings of ancient Babylon, if the power of a Merlin could bring them back to our view: "Every part of the building, without exception, is covered with enamelled bricks. Their ground is blue, upon which elegant flowers and sentences taken from the Koran are traced in white. The cupola is blue decorated with shields and arabesques. One can hardly imagine the effect produced by such a building on an European accustomed to the dull uniformity of our colourless buildings." The principal difference between this and those of ancient Babylon would be that arising out of the prohibitions of the Koran, for we find that in the latter period the Assyrians either cased their walls with limestone and alabaster, an expensive and laborious system, especially in Chaldæa, where stone was costly, or faced them with a skin of glazed brickwork of many colours.

The appearance of the monuments must be entirely left to the imagination: one can only guess at the effect of the towering masses of the palaces, planted on the great mounds, and approached from the plains by broad stairways. The stepped pyramid (No. 11 A, C) was the typical form of Chaldæo-Assyrian architecture. The portal, flanked by colossal winged bulls (No. 11 B, F, H, G, and No. 12 D, E), led to an audience-chamber paved with carved slabs of alabaster. Here a dado, 12 feet high, of sculptured slabs, representing hunting scenes, battles, and gods

(No. 12 F, H), was surmounted by a wall lining of glazed and brightly coloured brickwork, wrought in friezes of men and animals; over all was probably a beamed roof of cedar, through which small openings gave a sufficient illumination.

At Nineveh stucco appears to have been formed by the mixing of burnt chalk with plaster, which gave a sort of white gum that adhered tightly to the clay wall. At Khorsabad an ornamentation of portions of cylinders, in juxtaposition like trunks of trees placed vertically together, was employed externally. This style of decoration is a last reminiscence, as it were, of the timber stockading which had originally served to keep up and preserve the tempered earth before the regular use of sun-dried bricks.

Before leaving Asia, it will be well to glance for a moment at the district known as Asia Minor, and note how many of the buildings present stone forms borrowed from a timber type. The influence of tradition there is manifest, and the Tombs of Lycia present this feature more strongly perhaps than any remains in Western Asia. In one example, which can be seen at the British Museum, above a double podium, probably even originally of stone, is placed a rectangular chest, or sarcophagus, certainly copied from a wooden form, all the mortices and framing, even to the pins that held them together, being literally rendered in the stone-work. Above is a curvilinear roof of pointed form, which also is a copy of an original in wood. In Lycia other rock-cut tombs present flat and sloping roofs, in which unhewn timbers are literally copied; and the last stage shows us an Ionic façade developed from these carpentry forms.

Copying of timber forms in stone has also been traced in Egypt; in India, where it was introduced by the Bactrian Greeks, between the second and third century B.C., and in Greece somewhat earlier than in Lycia, say in the seventh century B.C. Thus it will be seen that style created by one material does not long survive its disuse. It was only in the infancy of stone architecture that men adhered to wooden forms; as soon as habit gave them familiarity with the new material, they generally abandoned the incongruities of the wooden style, and the principle of the original form passed away.

## 3. EXAMPLES.

### WESTERN ASIATIC ARCHITECTURE

can be divided into three tolerably distinct periods. Of these the first is the **Babylonian period** or Chaldæan period (B.C. **2234–1520**), which is essentially a **temple-building** epoch.





## THE FIRST OR BABYLONIAN PERIOD.

Principal **remains**:

Temple of Birs-Nimroud near Babylon.

Temple at Khorsabad.

Colonel Rawlinson has shown by his investigations that the temple of Birs-Nimroud was dedicated to the seven heavenly spheres.

In Chaldæa every city had its temple, and attached was the "ziggurat" (meaning holy mountain), which was a temple observatory, with the temple on the top platform, from which observations could be made (No. 11 A, C, D).

These temples appear to have been constructed in receding terraces, several storeys in height, and each of a different coloured brick; access to these storeys was obtained by stairs. The angles of these temples were orientated, in contrast to the Egyptian pyramids, whose faces were so placed. A walled inclosure surrounded the whole structure.

Our readers will remember the attempts of the Babylonians to build a tower which should "reach to heaven" (Gen. xi. 4), and it is a fact worth noting that here and in the pyramids of Egypt, countries both remarkable for their dulness and sameness of aspect, man should have attempted his highest flights of audacity in the way of artificial elevations.

## THE SECOND OR THE ASSYRIAN PERIOD

(B.C. 1290 to the destruction of Babylon by Cyrus in B.C. 538) is essentially a **palace-building** epoch.

Principal **remains**:

At Nimroud.

At Nineveh (or Koyunjik).

At Khorsabad.

We find that the same principle of raising the buildings on terraces, from 20 to 50 feet high, is followed in the designing of these palaces as we found in the case of the previous temples. Each terrace gradually decreased in area from the one below it, and was probably faced with glazed tiles of different colours.

The excavations at Nineveh (Koyunjik) tell us practically all we know of this period. Many of the sculptures which lined the walls are at the British Museum, and should be visited.

The remains at **Nimroud** (No. 11 E) and **Khorsabad**, near the ancient city of Nineveh, were raised on a mound or terrace, from 30 to 50 feet high, made of bricks, on which platform was

placed the palace. The palaces were faced externally and internally with stone. In the interior, above a sculptured dado of alabaster about 8 feet high, which seems to have been sometimes treated with colour, the walls were faced with hard-baked bricks of some size, painted and glazed in the fire, and forming a continuous frieze. Conjectural restorations have been made by various authorities (No. 11 B).

The great entrance portals to the palace were flanked by great human-headed bulls, 19 feet in height (No. 11 F, G, H). Examples of these are now preserved in the British Museum. These man-bulls have a mystical meaning; they were reproductions of the supposed creatures that guarded the sun-gates of the East and West, to which they were dedicated.

From the bas-reliefs we are able to say that the chambers, which were narrow in proportion to their length (No. 11 E), were lighted by windows, probably high up in the walls. The roof was probably constructed on solid wooden beams, though others have supposed barrel vaults to have been in use.

**The Palace of Gudæa** (B.C. 2800), explored by one of the French expeditions, is typical. Its plan is simple, the entrance being by a broad gateway leading into a central quadrangle, the gateway being flanked by curious guard-rooms, penetrating far into the wall, and evidently intended as shelters from the hot weather. Round this quadrangle were grouped the principal buildings, on one side offices and store-rooms, on the other the royal apartments, divided into two portions, the public rooms, and the women's quarters. This plan is typical in all oriental palaces up to the present day.

## THE THIRD OR PERSIAN PERIOD

commences with Cyrus, B.C. 538, and ends with Alexander, B.C. 333.

**Remains:**

At Susa, Persepolis, and Passagardæ, consisting of palaces, tombs, and temples.

The Persians were a hardy race from the mountainous district north of the Persian Gulf. Having under Cyrus conquered the Assyrians, B.C. 538, and having no architecture of their own, they proceeded to copy and adopt that of the conquered Assyrians, as the Romans in after times assimilated that of the Greeks.

In the neighbourhood of Susa and Persepolis, the new cities which they built, good stone was, however, to be found, and, as a consequence, many details, which are wanting in the earlier

periods, have come down to us. For instance, in Assyria the walls remain, but the columns, being of wood, have disappeared.

In Persia the columns and doorways, which were of marble, remain, but the walls are in many cases destroyed, being of thinner construction, with naked brick exposed.

At **Persepolis** the customary platform, already mentioned as a part of the palaces, is cut out of the solid rock, and not built up of bricks, as in the earlier Assyrian examples. This platform is approached by a staircase of black marble, each step rising about four inches.

The principal **remains** of this vast palace are:

The Propylæa and palace by Xerxes (B.C. 480).

The columns of the Great Hall, 67 feet high, by Xerxes, and other portions (No. 12 C, G).

The rock-cut **Tomb of Darius** is an imperishable copy of the façade of this palace (see Texier's great work), in which are found the "double-bull" capitals supporting the cornice cut out of the solid rock. The evidence of these columns goes to show that they were copied from wooden forms of the earlier Assyrian capitals, the wooden beam supporting the roof resting on the back of the bulls. The smaller columns have voluted capitals, fluted shafts, and moulded bases (No. 12) (see Tombs, p. 63).

At **Susa** was the palace of Xerxes and Artaxerxes (B.C. 480–405). Splendid decorations in coloured brick were lately excavated there, and are now in the Louvre at Paris.

**Jewish Architecture.**—The Hebrews apparently borrowed their architectural forms from Egyptian, Assyrian, Greek and Roman sources. Remains are unimportant, consisting of tombs in the valleys near Jerusalem.

The only great attempt at a monumental structure was the **Temple** at Jerusalem. The first temple was built by Solomon (B.C. 1012), and the biblical description (1 Kings vi., vii., 2 Chronicles iii., iv.) is interesting, portraying entrance pylons, courts, cedar woodwork, metal work, and the isolated brazen columns Jachin and Boaz. The Temple was afterwards added to by Herod (B.C. 18). The site is now occupied by the Mosque of Omar.

## 4. COMPARATIVE.

A. **Plan.**—It should be noticed that the temples of the early period and the palaces of the later period are all raised on a terrace some 30 feet to 50 feet in height (No. 11 G), and that the buildings on this terrace are grouped round a quadrangle. Whereas the sides of the Egyptian temples face the cardinal points

of the compass, the angles of the Assyrian temples face these points (No. 11 c). The Egyptian temples were designed for internal effect, while the Assyrian palaces were designed so as to be effective internally and externally, being raised on the platforms mentioned above.

B. **Walls.**—The Assyrians in the early period used only stone as a facing to their brick walls, contrasting with the solid marble work of the Greeks, and with the constructive use of stone and granite by the Egyptians.

Most of what we know of the life of the Assyrians is obtained from the facing slabs of alabaster with which they clothed their brick walls. Many of these are in the British Museum (No. 12).

C. **Openings.**—The lighting to the temples is conjectural, but it appears to have been effected by means of a "clerestory" (No. 11 B), somewhat similar to that in use in the Egyptian temples.

The use of the arch, both circular and pointed, was practised by the Assyrians, as is proved by the discoveries of Sir Henry Layard at Nimroud, and at Khorsabad (No. 11 F, G, H), in the city gateways, discovered by M. Place. We find semi-circular arches springing from the backs of winged bulls with human heads, which kept watch in pairs at each of the portals.

D. **Roofs.**—The roofing appears to have been effected by means of timber beams thrown from one column to the next, and resting on the backs of the "double-bull" capitals (No. 11 B). Some restorers show the halls of the palaces as vaulted with brick tunnel vaults.

E. **Columns.**—It is assumed by Mr. Fergusson that the columns were primarily of wood, stone columns being introduced in the later period, by the Persians, in the buildings at Persepolis, which they erected after their return from Egypt.

These columns had characteristic "double-bull" capitals (No. 12 c), and the Ionic scroll is noticeable in some examples. The columns therefore did not need to be so massive as in Egyptian architecture, where stone roofs had to be supported. The stone columns of the later period were probably founded on the timber posts of the earlier period.

F. **Mouldings.**—As in the case of Egypt, in West Asia the use of mouldings does not appear to have been advanced to any great extent. In the Assyrian palaces the sculptured slabs and coloured surfaces took their place. At Persepolis the bead and hollow may be noticed in the columns, while the volutes of the capital are treated with plain sinkings.

G. **Ornament.**—It is from the decorative treatment of Assyrian architecture that we can trace much of the peculiar and

characteristic detail used by the Greeks. On the sculptured slabs (No. 12 B, F, H) already mentioned at Nimroud and Koyunjik (Nineveh), two miles of which have been uncovered, are represented buildings with columns and capitals of Ionic and Corinthian form in embryo.

Further, we may say with some certainty that Greece took from Assyria the idea of the sculptured friezes, the coloured decorations, and the honeysuckle (No. 12 J) and guilloche ornaments. The latter may be seen in a pavement slab from the palace at Koyunjik, now in the British Museum.

The Corinthian column, as mentioned, seems probably to have been derived from Egypt and Assyria. From Asia Minor, Greece took the Ionic column—a prototype being also seen at Persepolis—perfecting it with that consummate skill and grace with which she transformed her borrowings.

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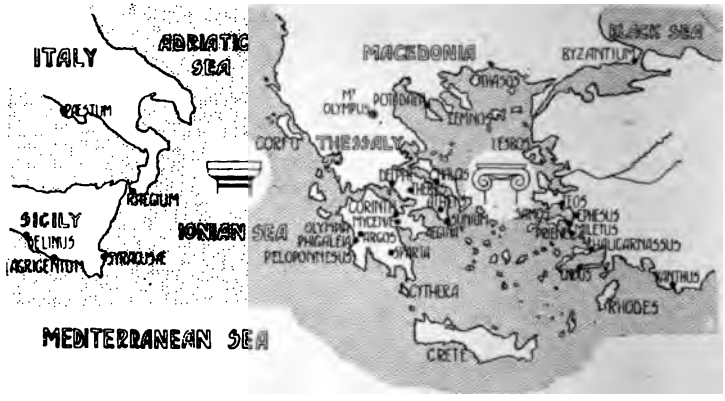
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A visit to the Assyrian galleries and basement of the British Museum will afford much interest and information to the student. Such a visit will impress him with the dignity and importance of the style.




GREECE

13.

# GREEK ARCHITECTURE.

"Fair Greece! sad relic of departed worth!
Immortal, though no more; though fallen, great!"—BYRON.

"And downward thence to latest days
The heritage of beauty fell;
And Grecian forms and Grecian lays
Prolonged their humanising spell,
Till when new worlds for man to win
The Atlantic riven waves disclose,
The wildernesses there begin
To blossom with the Grecian rose."—LORD HOUGHTON.

## 1. INFLUENCES.

i. **Geographical.**—A reference to the map of Greece (**No. 13**) shows a country surrounded on three sides by the sea, possessed of many natural harbours, and convenient for the development of trade. By means of these havens the Phœnician merchants in early times carried on commerce with the country. The influence of the sea in fostering national activity should not be forgotten—an influence, by the way, which has done much for the English race. Again, the mountainous character of the country, with scarcely a road until Roman times, was calculated to isolate the inhabitants into small groups, and together with the tempting proximity of a whole multitude of islands, was instrumental in producing a hardy and adventurous people, such as we might





expect to make good colonists, which the Greeks undoubtedly were.

**ii. Geological.**—In Greece the principal mineral product was marble, the most monumental building material in existence; and one which favours purity of line and refinement in detail. This material is found in great abundance in various parts of Greece, *e.g.*, in the mountains of Hymettus and Pentelicus, a few miles from Athens, and in the islands of Paros and Naxos. In the effort to obtain refinement of line and smoothness of surface where crude bricks were used they were in many cases coated with a fine cement formed of marble dust and lime; where stone was employed and not marble, as at Pæstum, it appears to have been coated with this marble cement. Marble itself was often treated in the same way, the cement being susceptible of a higher polish than the uncemented surface. The country was also rich in silver, copper, and iron.

**iii. Climate.**—The climate of Greece is remarkable for the hot sun and the heavy rains, factors probably answerable for the porticoes which were the feature of their temples.

Greece enjoyed a position intermediate between the rigorous surroundings of the Northern nations and the relaxing conditions of Eastern life. Hence the Greek character combined the activity of the North with the passivity of the East in a way that conduced to the growth of a unique civilization.

**iv. Religion.**—The Greek religion was in the main a worship of natural phenomena (nature-worship, major and minor), of which the gods were personifications. There are, however, numerous traces of ancestor-worship, fetishism, and other primitive forms of religion. It should be borne in mind that Greek cults were always local, each town or district having its own divinities, ceremonies, and traditions. The priests had to perform their appointed rites, but they were not an exclusive class, and often served only for a period, retiring afterwards into private life. Both men and women officiated, and commonly a small bright "cella" takes the place of the mysterious halls of the priest-ridden Egyptians.

**v. Social and Political.**—The early inhabitants were known to the ancients under the name of Pelasgi. Their civilization belonged to the bronze age, as is evident from the remains of it found at different points round the Ægean sea, *viz.*, in Crete, at Hissarlik in the Troad, at Mycenæ, Tiryns, and elsewhere. It fell before the iron weapons and greater courage of invaders from the North, *viz.*, the Achæans or Homeric Greeks. We note in passing that the war against Troy affords proof of an early connection of the inhabitants of Greece with Asia. The Achæans in their turn succumbed to a fresh influx of invaders from the North,

hardy mountaineers called Dorians, who established themselves at Sparta and elsewhere in the Peloponnese. In classical times we find the land peopled by Ionians (*i.e.*, the old Pelasgic population), Æolians (*i.e.*, descendants of the Achæans), and Dorians. Dorian Sparta and Ionian (= Pelasgian) Athens are the two principal actors in the drama of Greece. It was not till some 500 years after the fall of Troy that the new Hellenic civilization was evinced in the construction of the Temple of Corinth, the earliest Doric temple that we know, it having been erected in the seventh century B.C.

In regard to the people themselves, it is clear that the national games and religious festivals united them in reverence for their religion, and gave them that love for music, the drama, and the fine arts, and that great emulation in manly sports and contests which distinguished the race. We must remember that the people led what we should call an open-air life; the public ceremonies and in many cases the administration of justice were carried on in the open air.

The Greeks, as indicated above, were great colonists, and emigration, especially to the coast of Asia Minor and the Mediterranean, was a government measure dating from about B.C. 700, undertaken not only to establish trade, but also to reduce the superfluous population, and to provide an outlet for party strife. It thus came about that the colonies were often peopled with citizens of a more energetic and go-ahead character than those of the mother country; for this reason we shall be prepared to find that many of the important buildings of Greek architecture, especially in the Ionic style, are in their colonies of Asia Minor, and that this connection with the East had some influence upon their architecture.

**vi. Historical.**—The poems of Homer, apparently a Pelasgic bard who sang for Achæan masters, give us a picture of Greek life about the twelfth century B.C. Whether or no the war with Troy be an actual fact, the incidents related have a substratum of truth, and the tale probably arose out of the early conflicts of the Greeks in north-west Asia. The Hesiodic poems, *circ.* 750 B.C., depict the gloomy prospects and sordid life of the Bœotian peasantry at a time when art was almost in abeyance. For the fourth and fifth centuries B.C. we have the more or less critical histories of Herodotus, Thucydides, Xenophon, and others. The cities of Greece had by this time settled down in their several forms of government—tyrannic, aristocratic, or democratic—and most of their colonies had been founded. The Persians under Cyrus, having captured Sardis, overthrew the kingdom of Lydia; whereupon the Greeks of Asia Minor became subject to Persia.

It was the revolt of these Ionians in B.C. 499-493 which led to the Persian wars. At the battle of Marathon, B.C. 490, the first great Persian invasion of Greece was unsuccessful; and in B.C. 480 the naval victory of Salamis decided the fate of the second under Xerxes. National exaltation caused by the defeats of the Persians is largely responsible for the fact that all the important temples now found in Greece were built in the "fifty years" which succeeded the battles of Salamis and Platæa. The wonderfully rapid growth of Athens excited the jealousy of the slower Spartans, and the Peloponnesian War, which followed, lasted from B.C. 431 to 404. The rule of Pericles (B.C. 444-429) marks the climax of Athenian prosperity. The Peloponnesian war left Sparta the chief power in Greece; but her arbitrary and high-handed conduct roused other states against her, and the supremacy passed successively to Thebes and Macedonia. The latter had hitherto been considered a half-barbarian state; but, thanks to the consummate ability of Philip and the brilliance of his son Alexander the Great, it rose to a leading position in Greece. In B.C. 334 Alexander set out on his great expedition, and in six years he subdued the Persian Empire, having besieged and taken Tyre *en route* and received the submission of Egypt, where he founded and gave his name to the famous city of Alexandria. His conquests extended to Northern India. He died at Babylon in B.C. 323. The effects of his conquests were most important, for he introduced Hellenic civilization far and wide throughout Asia. On his death the empire he had created was split up among his Generals, Egypt falling to the share of *Ptolemy*, who founded a dynasty (see under Egypt). In Greece itself the formation of leagues between cities was attempted (Achæan League, Ætolian League); but the Roman interference had commenced, and gradually increased until in B.C. 146 Greece became a Roman province. The isolation and mutual animosity of the Greek communities afforded all too good an opportunity for the intrusion of the better-centralized and more united power of Rome. *En revanche*, where arts not arms were concerned,

> "Græcia capta ferum victorem cepit et artes
> Intulit agresti Latio."

## 2. ARCHITECTURAL CHARACTER.

Much as Greek culture owed to the preceding Oriental civilizations, still the change effected by the Greeks has so profoundly influenced the development of European progress that we moderns must regard Greece as the veritable source of literary and artistic inspiration. As a recent writer puts it,

"Whate'er we hold of beauty, half is hers." Greek architecture stands alone in being accepted as beyond criticism, and as being an obligatory study for students of otherwise very different principles. What was the real course of the development of this great style, and more especially what was its origin?

Perrot and Chipiez, in their monumental work on "Art in Primitive Greece," discuss the question of the wooden origin of the Greek column and its entablature, and endeavour to show how the timber construction of the Pelasgic period was imitated in the maturer style in stone (No. 16).

In regard to the origin of the Doric order, they make various interesting suggestions, *e.g.*, the derivation of the "guttæ" from constructive wooden pegs. Indeed, it may be allowed that the restoration given of the timber architecture of the Pelasgic palaces, and the explanation of the wooden types used decoratively in the later stone architecture, form a consistent and attractive theory—a theory, moreover, which is yearly gaining ground and is to many minds convincing. Illustrations showing these reconstructions are given in No. 16. The authors decline to accept the favourite derivation of the Doric capital from the Egyptian—as, for instance, from the Doric capital at Beni-Hasân—but give no derivation of it themselves.

It is well, however, to remember that in Viollet-le-Duc's opinion the orders of Greek architecture involve an original stone treatment. He was unable to conceive how the Greek Doric capital could have been derived from a timber form, and he considered the triglyphs in the frieze, not as the petrified ends of wooden beams—which could not be seen on four sides of a building, and which would be very difficult to flute across the grain of the wood—but as original stone uprights, fluted to express their function of vertical support, and therefore treated in this respect in the same manner as the columns, which were certainly fluted when in position. He likewise observed that "the form given to the entablature of the Doric order can be adapted with some unimportant variations to a structure in stone as well as of wood, in neither case involving the necessity of falsifying the form or the structure." He was not prepared to admit, then, that a wooden original suggested the stone structure in the composition of the Doric order; indeed, he would rather suppose the converse.

Garbett goes so far as to call the wooden theory an "insolent libel," and asserts that in the case of the inclination of the soffit of the cornice this barbarous theory is at once disproved by two facts, the inclination being observed on the fronts equally with the sides of the building, and its angle being wholly independent of that of the roof.

A later writer, Mr. H. H. Statham, in a recent work on architecture, rejects the wooden theory as far as the Doric column and capital are concerned, and adds that its adherents have to explain these facts: (i.) That the further back we go in the known and approximately dated examples, the thicker the columns are, while the reverse would probably have been the case had the original forms been wooden; and (ii.) That the characteristic moulding under the abacus of the Doric column is an essentially stone form, and one which it would not be at all easy to work in wood.

These opponents of the wooden theory might, however, have modified their views, had they been familiar with the recently-discovered examples of Pelasgic or "Mycenæan" construction. The similarities between these proto-historic buildings and the later Greek styles of architecture are too numerous to be accidental, and Pelasgic or "Mycenæan" palaces undoubtedly had columns and entablatures of wood.

So much for the theories of origin.

Further, in considering the effect of finely-dressed marble blocks as a building material, it will be seen that the architecture of jointed stone gave rise to lintel-statics in their simplest expression.

Stability was achieved solely by the judicious observance of the laws of gravity; mortar was unused, the adhesion or cohesion of the blocks of marble not being necessary; for the weights in Greek structures acted only vertically, and consequently needed but vertical resistances. The supports had to be close together for the obvious reason that stone or marble lintels could not be obtained of more than a very limited length. In fact, the employment of hewn stone by itself directly shaped the development of the style. In matters of detail, that is, in the mouldings, features, and sculpture, the influence of the hard, fine-grained marble which was employed, rendered possible the delicate adjustment and refined treatment practised in the structures of the great Hellenic period. This trabeated architecture necessitated and received great severity of treatment; grandeur, refinement, and unity of effect were preferred to the more broken picturesqueness of the aggregated cells of the Egyptian temples. The absence of mortar is not rightly appreciated unless we grasp the Greek conception of its use. Even the Romans looked upon it as a binding agency and nothing more. The Greeks certainly never thought of using it to transmit or equalize the pressure between the stones. Indeed, in their constructions of large and regular blocks, mortar would have been insufficient to produce such a result; therefore, it was regarded as useless and was not employed; the blocks

were united together with "cramps" or pieces of iron strongly embedded.

Architecture, however, depends not only upon the materials used, but also upon the method of using them. Choisy has made a careful study of the point in connexion with the temples of Pæstum and Ægina. He finds that the Greeks placed the stones on their natural bed or otherwise, according to the pressures they had to bear, and he remarks that the architraves, which had to support a cross pressure, were placed with the planes of their beds in a vertical position as being better able to withstand the weight put upon them, and so enabling a wider intercolumniation to be obtained. This knowledge on the part of the Greeks implies a careful use and study of materials.

The general architectural character of their earliest works is heavy and severe, the influence of the early Pelasgic period being at once apparent.

A gradual change towards refinement and beauty is observable, and in the later periods the proportions of the columns were more slender, and the mouldings more refined. Carving and sculpture of the highest class completed the effect of their great buildings.

Proportion was of the first importance to the Greeks; construction was apparent; and no mixture of principles was allowed, the architecture being trabeated throughout. Thus in Greek buildings we find harmony, simplicity, and unity. The Greek style, as already stated, is essentially a columnar and trabeated (*trabs* = a beam) style, one—that is to say—in which a column of stone supporting a lintel of the same material is the main feature.

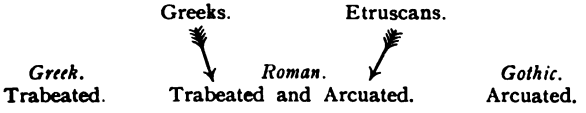
Apart from trabeated openings, the Greeks occasionally had recourse to the corbel-system and to the true arch.

*Corbels.*—(*a.*) Sometimes *horizontal* courses were employed projecting one above the other till the apex was reached, and the two sides touched. This might produce either a triangular opening (*e.g.*, above the lintel of the *tholos*-tombs) or an apparent arch (*e.g.*, certain gates at Œniades in Acarnania, and at Assos). (*b.*) Sometimes *inclined* blocks projected one above the other till the apex was reached. This was the case in the very early, perhaps prehistoric, sanctuary on Mount Ocha in Eubœa: *cp.* also the gallery at Tiryns. With these corbel-openings may be classed *lean-to* roofs and lintels, such as that which may still be seen in the ancient shrine of Apollo on Mount Cynthus (Delos).

*Arches.*—A few examples of Greek arcuated work are extant, *viz.*, a Cyclopean arch at Cnidus; an arch with a key-stone (partially dropped) in Acarnania; an arched gateway at Œniades. A water-channel or drain at Athens, which crosses the town from east to west, is sometimes arcuated, sometimes roofed with

advancing corbels. The barrel-vault (*kamara*) occurs in subterranean funeral chambers in Macedonia; also in the vaulted passages at the theatre of Sicyon, the tunnel leading to the Stadium at Olympia, etc.

Nevertheless, the trabeated style was the one which the Greeks deliberately approved and developed almost to the exclusion of the other two, which occupy a quite subordinate position till Roman times. The following diagram emphasizes the main facts:—




In considering this columnar architecture, we shall have to take notice of the so-called "orders of architecture" classified as the Doric, Ionic, and Corinthian, each with its distinctive features.

It may be well to explain here that an "order" in Greek and Roman architecture consists of the column, including base and capital, and of its entablature, which is the part supported by the column. The entablature is divided into the architrave, or lowest portion; the frieze, or middle member; and the cornice or uppermost part. All of these parts vary in proportion in the different orders, as do the mouldings and decorations applied to each part (No. 23). The Doric column, the oldest, plainest, and most sturdy, is traced by many to an Egyptian prototype as exemplified at Beni-Hasân (No. 5); the Ionic column, especially remarkable for its scroll-like spiral capital, to a probable prototype in Asia Minor (No. 12 G); and the Corinthian column and capital to a probable Egyptian (No. 9 L) and Assyrian prototype; or else, as it has been assumed by some, to a natural development of the Ionic.

The characteristics of each order are well expressed in the following lines:

"First, unadorn'd,
And nobly plain, the manly Doric rose;
Th' Ionic, then, with decent matron grace,
Her airy pillar heaved; luxuriant last,
The rich Corinthian spread her wanton wreath.
The whole so measured, so lessen'd off
By fine proportion, that the marble piles,
Form'd to repel the still or stormy waste
Of rolling ages, light as fabrics look
That from the wand aerial rise."—THOMSON.

The late J. Addington Symonds well observed that Art is commonly evolved through three stages: (1) The ardent and

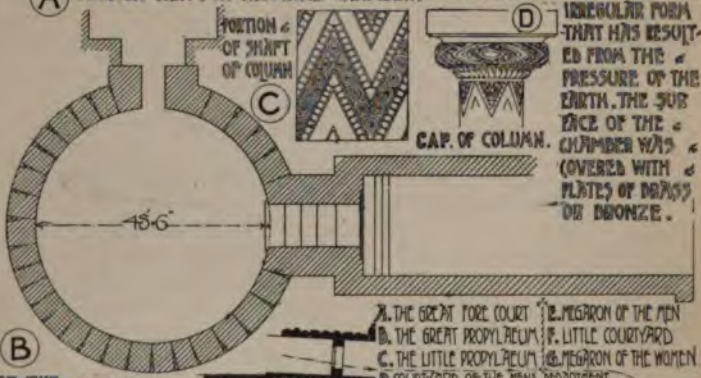
# PELASGIC SYSTEM OF CONSTRUCTION.

THE SUBTERRANEOUS CHAMBER AT MYCENÆ ALSO KNOWN AS THE TREASURY OF ATREUS ABOUT 1185 B.C.




THE PRINCIPAL CHAMBER IS FORMED OF HORIZONTAL RINGS, EACH OF WHICH HANGS OVER THE ONE BENEATH THE REQUISITE PROJECTION TO FORM THE CURVE, AND MOST PROBABLY THE FORM WAS PRODUCED AFTER THE WHOLE WAS ERECTED BY CUTTING AWAY THE PROJECTING ANGLES. THE ORIGINAL PROFILE OF THE INNER SURFACE REPRESENTS A SPECIES OF PARABOLIC CURVE. THE LEFT SIDE SHOWS THE IRREGULAR FORM THAT HAS RESULTED FROM THE PRESSURE OF THE EARTH. THE SURFACE OF THE CHAMBER WAS COVERED WITH PLATES OF BRASS OR BRONZE.

(A) SECTION THROUGH PRINCIPAL CHAMBER.




(B) PLAN OF THE TREASURY OF ATREUS

A. THE GREAT FORE COURT
B. THE GREAT PROPYLÆUM
C. THE LITTLE PROPYLÆUM
D. COURTYARD OF THE MEN'S DEPARTMENT
E. MEGARON OF THE MEN
F. LITTLE COURTYARD
G. MEGARON OF THE WOMEN

THE GATE OF LIONS MYCENÆ.




(E)




(F) ACROPOLIS AT TIRYNS. PORTION OF THE UPPER (SOUTH) CASTLE, DESTROYED B.C. 468. ITS WALLS OF CYCLOPEAN MASONRY COMPOSED OF BLOCKS OF STONE 6 TO 10 FEET LONG & 3 FEET WIDE.

inspired embodiment of a great idea—this gives strength and grandeur; (2) the original inspiration becomes tempered by increasing knowledge and a clearer appreciation of limits—the result being symmetry; (3) as inspiration dies down, details are elaborated, and novelties introduced to make up for its loss—this occasions a brilliant but somewhat disproportioned style. This progress can be traced in all departments of Greek life. In poetry we have the rugged grandeur of Æschylus, the exquisite symmetry of Sophocles, the brilliant innovations of Euripides. In sculpture, an Ageladas, a Pheidias, a Praxiteles. In architecture, the solid strength of the Doric capital, the clear-cut beauty of the Ionic, and the florid detail of the Corinthian.

## 3. EXAMPLES.

**The First or Pelasgic Period of Greek Art** has already been defined as extending to shortly after the war with Troy, though in the Islands (*e.g.*, Cyprus), it lasted on till the eighth century B.C. The architectural remains of this period include town-walls, tombs, etc. The walls are of three sorts: (1) "*Cyclopean*," *i.e.*, masses of rock roughly quarried and piled on each other, without crampons, but with clay mortar. They fit more or less together, the interstices of the larger being filled up with smaller blocks. Examples at Argos, Tiryns, Mycenæ (No. 14), Athens, etc. (2) *Rectangular*, *i.e.*, carefully hewn rectangular blocks arranged in regular courses. The joint between two stones in the same course is not always vertical. Examples: entrances and towers at Mycenæ, also sides of *dromoi* in *tholos*-tombs. (3) *Polygonal*, *i.e.*, many-sided blocks accurately hewn so as to fit together. Examples: parts of the wall at Mycenæ, wall south of Acropolis at Athens, Cnidus, etc. Thus all three styles occur in structures of "Mycenæan" age. In out-of-the-way places (Caria, etc.) they survived for centuries. The first is seemingly the parent of the other two: but the common assumption that polygonal is later than rectangular masonry cannot be proved for the Pelasgic period.

The *tholos*- or beehive-tombs at Mycenæ, Orchomenos, Amyclæ, etc., were originally modelled on underground huts for the living. Prof. Adler traces the precise shape to Phrygia (see Vitruv. ii., 1, 5). At Mycenæ the *tholoi* are confined to the lower city as opposed to the shaft-graves of the upper city. The largest and best preserved is the so-called "Treasury of Atreus" (No. 14). It consists of a long entrance passage or *dromos* (20 feet broad by 115 feet long), a large vaulted chamber (about 50 feet broad by 50 feet

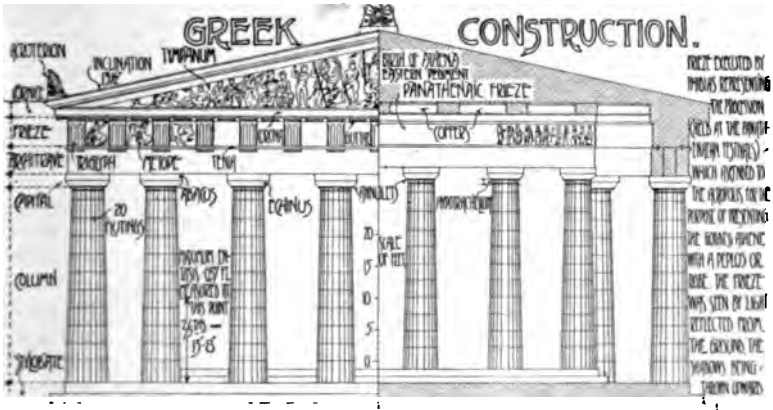
high) and a small square tomb-chamber adjoining. A similar tomb at Orchomenos in Bœotia has a magnificently ornamented ceiling in its sepulchral chamber. Another at Menidi in Attica has no less than five superposed lintels to support the mass of earth above it (*cp.* section of Great Pyramid No. 4 D). These tombs belong to the second stage in the evolution of the dwelling-house, the complete series being (*a*) natural cave; (*b*) artificial cave below ground; (*c*) artificial cave above ground, *i.e.*, hut. The famous Lion-Gate on the Acropolis at Mycenæ also belongs to this period (No. 14 E).

For the first 400 years of **The Second or Hellenic Period** there is no building of importance still extant. All the principal temples and monuments were erected between 650 and 324 B.C., the first important building being the Temple of Corinth (B.C. 650) in the Doric style.

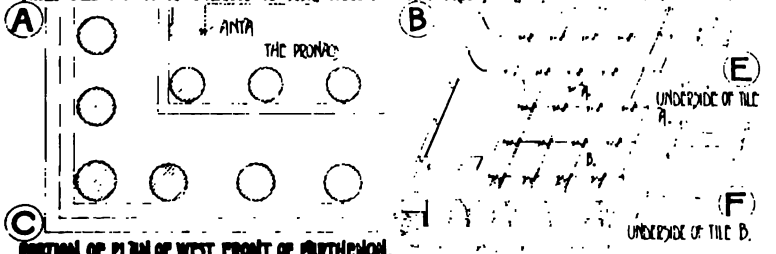
Although this period may be thus defined, the masterpieces of Greek architecture were all erected within the short space of about 150 years, between the defeat of the Persians in B.C. 490 and the death of Alexander in B.C. 323.




15.




HALF ELEVATION OF PORTICO OF PARTHENON. HALF TRANSVERSE SECTION OF PARTHENON.



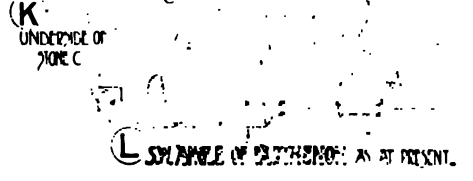

PORTION OF PLAN OF WEST FRONT OF PARTHENON.




RESTORATION OF A DORIC ENTABLATURE BY PERROT & CHIPEZ. ALSO PARTS A & B DISSOCIATED.

SOUTH WEST ANGLE OF PARTHENON AS RESTORED BY PENROSE.




SQUARE OF PARTHENON AS AT PRESENT.

16.

## THE TEMPLES OF THE GREAT PERIOD OF GREEK ARCHITECTURE

are all built for external effect, in contradistinction to Egyptian temples, where beauty is lavished on internal courtyards and halls. The Acropolis at Athens has some of the best known buildings in Greece, and a plan is given (No. 15). The Propylæa is shown to a large scale in No. 17 N.

The Greek Temple was moreover further in contrast to the Egyptian in being a public as opposed to a royal monument.

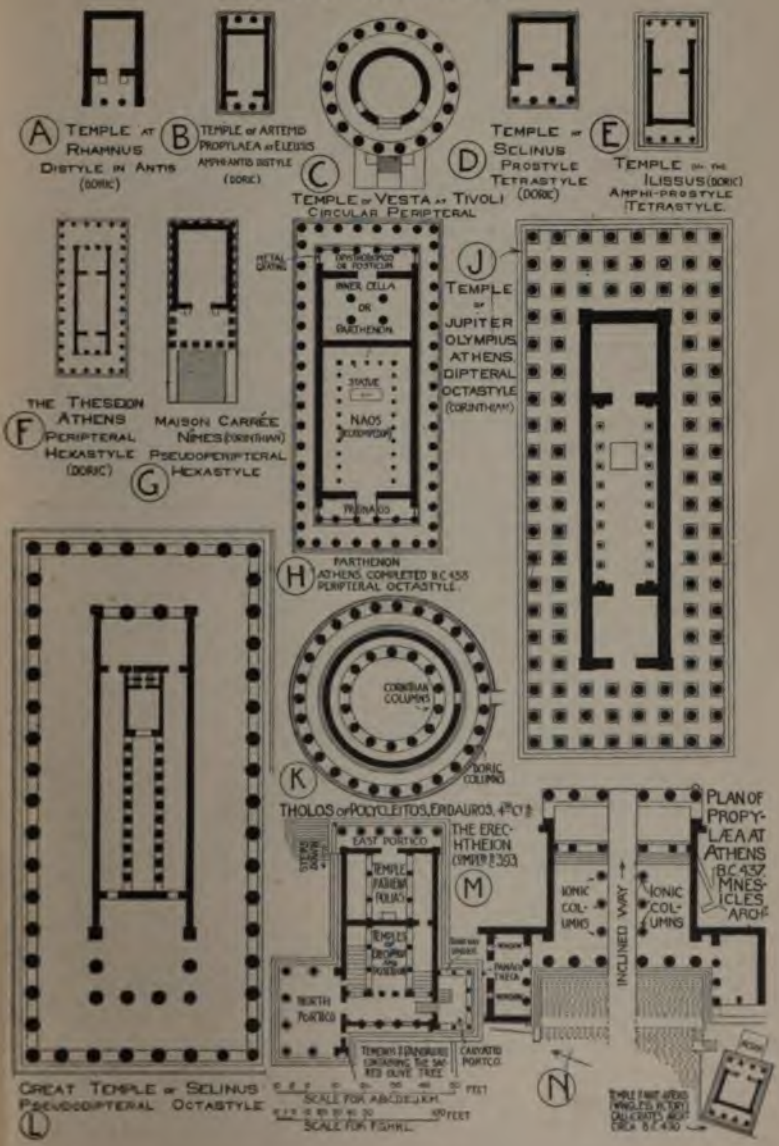
The temples generally consisted of—a *naos* or cell in which was placed the statue of the god or goddess; a treasury or chamber beyond; a front and rear portico, with flanking colonnades, the block shape being oblong. In the larger temples were internal colonnades of columns placed over each other to support the roof (Nos. 17 H and 19). On the two end façades above the columns a triangular-shaped pediment usually but not always filled with sculpture terminated the simple span roof (Nos. 16 A and 21 O). These roofs were constructed of timber and covered with marble slabs; the ends of the overlapped joints were provided with *ante-fixæ* at the eaves (Nos. 16 D and 28 N). The door was almost always placed in the centre of the end wall, behind the portico of columns, and frequently planned so that the sun might enter and light up the statue opposite. The temple was generally raised on a stylobate of three steps.

The general absence of windows in the temples, one at Agrigentum being the only exception (No. 21 O), has given rise to many theories as to how light was admitted. The method of lighting by a clerestory concealed in the roof which is favoured by Mr. Fergusson (No. 19 A) can be seen practically in Sir Arthur Blomfield's restoration of St. Peter's, Eaton Square, London. Another theory by Herr Bötticher is also shown (No. 19 B).

The temple was regularly "hypæthral," that is to say, there was an opening in the roof which admitted air and light to the central portion of the *naos* or cell. This hypæthral opening has been often denied in modern times. But the evidence for it is overwhelming. Indeed, when we remember that the temple was the house of the local god, and, as such, was merely a glorified dwelling-house, it becomes obvious that the opening in the centre of an ordinary house must have had some counterpart in that of the divinity. Both alike were developed out of the smoke-hole of the primitive hut: the whole development is ably traced in an article on "domus" in Daremberg et Saglio, "Dict. des Antiquités." An extant hypæthral opening is that of the Pantheon at Rome.

Artificial illumination by means of lamps may also have been employed.

# GREEK EXAMPLES I.



**The different kinds** of temple (see No. 17) are thus classified, by the disposition of their columns, as:

i. *Di-style in antis* at one end, the simplest form. (Ex. Temple of Rhamnus, No. 17 A.)

ii. *Di-style in antis* at both ends. Ex. Doric Temple at Eleusis, No. 17 B.

iii. *Circular peripteral.* Ex. Philipeion at Olympia, The Tholos at Epidauros, No. 17 K.

iv. *Prostyle tetrastyle.* Ex. Doric Temple at Selinus, Sicily, No. 17 D.

v. *Amphi-prostyle tetrastyle.* Ex. Ionic Temple on the Ilissus, and Temple of Niké-Apteros, No. 17 E, N.)

vi. *Peripteral hexastyle.* Ex. The Theseion (Doric), Athens, Nos. 17 F and 20, Temple of Neptune, Pæstum, No. 21 A, B, C, Temple of Apollo at Bassæ, No. 21 F, G, H.

vii. *Pseudo-peripteral.* Greek example, Doric Temple of Jupiter at Agrigentum (No. 21 M, N, O), usually employed by the Romans. Ex. Maison Carrée at Nîmes (Corinthian), Nos. 17 G and 31.

viii. *Peripteral octastyle.* Ex. the Parthenon (Doric), Athens, Nos. 16 and 17 H.

ix. *Octagonal.* Ex. Tower of the Winds (Corinthian), Athens, No. 21 K, L.

x. *Dipteral octastyle.* Ex. Temple of Jupiter Olympius (Corinthian), at Athens, No. 17 J.

xi. *Pseudo-dipteral octastyle.* Ex. Great Doric Temple of Selinus, Sicily, No. 17 L.

xii. *Irregular planning.* Ex. Erechtheion (Ionic), Athens, No. 17 M, Teleskrion at Eleusis, etc.

xiii. *Circular temples*, employed by Romans. Ex. Pantheon, No. 32.

(*a.*) *Peripteral.* Temple of Vesta, Rome, and Tivoli, No. 17 C.

(*b.*) *Monopteral* (in which the roof was supported by columns only, without walls).

(*c.*) *Pseudo-peripteral.*

All of these are shown on the sheet of plans (No. 17) which is given, in order to make the general distribution of parts familiar to the reader. The different methods of spacing the columns one from the other is shown in No. 26.

*Note.– Having described the different varieties of temple, we may now mention that they were erected in either the Doric, Ionic, or Corinthian style. The distinctive features of these "orders" are now therefore described, and appended to each is a list of the principal examples in each style.*



18. The Parthenon, Athens.
View of Angle.



## THE DORIC ORDER

(Nos. 16, 18, 19, 20, 21 and 23 A), already mentioned on pp. 42, 45, is the simplest and the oldest of the orders. Its prototype is considered by some to be the Beni-Hasân type, while others, as MM. Perrot and Chipiez, derive it from the wooden built *prodomus* or porch of the early Mycenæan palace. The circumference of the column was usually divided up into 20 flutes, occasionally into 12 (Assos), 16 (Sunium, etc.), 18 (Greek Temple at Pompeii), or 24 (Temple of Poseidon at Pæstum, etc.). The division into twenty flutes seems to have been selected in order that a projection or arris might come under the most prominent point of the abacus above. If the student will set this out he will observe that no other number of flutes between twelve and twenty-eight will enable him to do this. It was therefore one of their constructive principles of placing projections over projections which caused the Greeks to adopt this number.

The annulets or horizontal fillets varying from three to five in number are placed beneath the echinus of the capital in order to form a stop or contrast to the long lines of the arrises of the fluting. The older or archaic examples usually have two or three grooves in the hypotrachelion or necking, while in the later examples there is only one groove. As used by the Greeks, the column is without base or pedestal, or, to be more accurate, the stylobate itself acts as the base. The height is usually from 4 to 6½ times the diameter at the base, and the column diminishes at the top to from ⅔ to ¾ of its lower diameter.

It has a distinctive capital, which expresses support (No. 27 D), having a somewhat similar outline to a human hand supporting a book, the *abacus* (Gk. slab) or topmost member of the capital being supported by a large convex moulding called the *echinus*, whose outline varies according to the date of erection, the earlier examples, such as the Temple at Pæstum, being fuller in outline (approximately parabolic section), whereas in the later examples, such as the Parthenon and the Temple of Jupiter Nemeus, the curve approaches a straight line (approximately hyperbolic section).

The shaft of a Greek column has normally an outward curvature of profile called "entasis." In early works this is often too obtrusive (*e.g.*, Basilica at Pæstum); but, where it is omitted altogether (*e.g.*, Corinth) the effect is lifeless. The happy mean may be seen in the Parthenon columns.

The distinctive **entablature** has three main divisions (No. 16):

i. The architrave is developed from its prototype, the wooden beam having only one vertical face, whereas other orders have three.

ii. The frieze has triglyphs and metopes (or square spaces)

# COMPARATIVE RESTORATIONS OF THE METHODS OF LIGHTING THE INTERIORS OF GREEK TEMPLES.




FERGUSSON.
METHOD OF LIGHTING BY CLERESTORY

## THE PARTHENON
## ATHENS.

10 5 0 10 20 30 40
SCALE OF FEET




BÖTTICHER
METHOD OF LIGHTING BY SKYLIGHT.

filled with architectural sculpture, generally of the highest quality (Nos. 16 and 23). The "triglyphs" are supposed to be derived from the ends of wooden beams, the "metopes" being the open spaces between them (see page 42).

The "guttæ," or drops, by some considered to be derived from wooden pegs, are the small conical projections which occur under the triglyphs and mutules.

The disposition of the triglyphs is important in the setting out of the order (Nos. 16 and 23 A).

One triglyph is placed above the centre of each column and one in the centre of each intercolumniation. At the angle two triglyphs join with a common bevelled edge. This would make the adjoining metope much too large: hence the next triglyph is *not* put in the centre of the last intercolumniation, but equally divides the space between the triglyph at the corner and the triglyph over the second column. The usual diminution of the outermost intercolumniation and the slight lateral inclination of the angle column assist in the approximation of the outer metopes to the normal spacing. Thus the last two metopes are equal to or inappreciably larger than the rest.

iii. The cornice has subdivisions of (*a*) bed moulding; (*b*) crowning part, or corona (No. 27 A).

The mutules recall the feet of sloping timbers, from which many suppose them to be derived (see No. 16 H).

## DORIC EXAMPLES IN GREECE.

| | *Date.* | *Architect.* |
|---|---|---|
| The *Heraion* at Olympia | B.C. 700 | |
| The *Temple of Athena* at *Corinth* | B.C. 650 | |
| The *Temple of Poseidon, Island of Paros* | B.C. 6th cent. | |
| The *Temple of Theseus* (The Theseion) at Athens (No. 17 F and 20). | B.C. 465 | |
| The *Temple of Zeus, Olympia* | B.C. 472–469 | Libon. |
| The *Temple of Aphaia* on the Island at Ægina. | B.C. 470–450 | |
| The *Parthenon* (Temple of Athena) at Athens (Nos. 15, 17 H, 18, 19). | B.C. 438 | Ictinus and Callicrates. |
| The *Propylæa* (Entrance Gateway) at Athens (Exterior Doric, interior Ionic). | B.C. 437–432 | Mnesicles. |
| The *Temple of Apollo Epicurius* ("The Ally") at Bassæ near Phigaleia in Arcadia (No. 21 F, G, H). (Exceptional design, exterior Doric, interior Ionic, interior columns form the end of projecting piers, one Corinthian column occurs at the end. Thus the three orders are found in this building.) | B.C. 430 | Ictinus. |

## Doric Examples in Greece (*continued*).

| | *Date.* | *Architect.* |
|---|---|---|
| The *Temple of Poseidon*, Sunium . . . | B C. 440 | |
| The *Tholos at Epidauros* (external colonnade) (No. 17 K). | B.C. 4th cent. | Polycleitos the younger. |
| The *large and small Temples of Nemesis* at *Rhamnus* (No. 17 A). | | |
| The *Temple of Demeter* (Ceres), The Hall of the Mysteries at Eleusis. | B.C. 435–310 | Ictinus and Philon. |
| The *Temple of Apollo*, Island of Delos . . | B.C. 300 | |

## IN SICILY AND SOUTH ITALY.

| | *Date.* | *Architect.* |
|---|---|---|
| The *Temple* (*North*) *at Selinus*, Sicily (No. 17 L). | B.C. 610–590 | |
| The *Temple of Poseidon, Pæstum*, S. Italy | B.C. 550 | |
| The *Temple known as the "Basilica,"* Pæstum. (Façade of nine columns. No. 21 D, E.) | B.C. 550 | |
| The *Temple of Ceres*, Pæstum . . . | B.C. 550 | |
| The *Temple of Concord*, Agrigentum . . | B.C. 550 | |
| The *Temple of Juno*, Agrigentum . . . | B C. 550 | |
| The *Temple of Athena*, Syracuse, Sicily . | B.C. 6th cent. | |
| The *Temple of Egesta*, Sicily. . . . | B.C. 5th cent. | |
| *Temples* (*several*) *at Selinus*, Sicily . . | B.C. 628–410 | |
| The *Temple of Zeus* (Jupiter Olympius) at Agrigentum (Girgenti), Sicily (No. 21 M, N, O). (Exceptional design, being enclosed by walls with engaged columns, the cella wall of piers supporting figures.) | B.C. 480 | Theron. |

**The Parthenon.**—The Temple dedicated to Athena Parthenos (The virgin Athena) was erected from designs of Ictinus and Callicrates in the time of Pericles, Pheideas being the superintendent sculptor (Nos. 15, 16, 17 H, 18 and 19).

All optical illusions are carefully corrected: thus the entasis or graceful swelling of the columns was applied to correct an appearance of hollowness in the supports, while the outer intercolumniation was narrowed for the purpose of making the angle of the temple appear stronger. The slight hollowing of the underside of beams over the openings served to prevent them from appearing to "sag," or drop in the middle. The steps of the stylobate are also raised in the middle to prevent any appearance of sagging in them at the centre. The leaning inwards of all the columns prevented an appearance of falling outwards (the axes of the angle columns would meet, if prolonged, at a distance of over a mile above the ground).



20. THE THESEION, ATHENS.



The eastern pediment (No. 16 A) portrayed in sculpture the birth of the goddess Athena; while the western pediment represented the contest between Athena and Poseidon for the patronage of Athens.

The frieze on the wall behind the columns was sculptured to represent the annual procession of the Athenians to present the new robe or *peplos* to the goddess Athena. This is known as the Panathenaic frieze (Nos. 16 B and 28 G). The sculpture in the **metopes** represented contests between the gods and giants (E.), Centaurs and Lapithæ (S.), Greeks and Amazons (W.), and perhaps scenes from the siege of Troy (N.) (Nos. 16 A and 28 H).

> "Earth proudly wears the Parthenon
> As the best gem upon her zone."—EMERSON.

## THE IONIC ORDER

(No. 23 C) is of a lighter character and more ornate than the Doric. It was principally used by the Greeks in Ionia (Attica and Asia Minor)—hence its name—and is probably founded on oriental types. The shafts are fluted with twenty-four flutes, separated by fillets and not by sharp edges, as in the Doric order (No. 23 A). The column has a base. The height of the column is between eight and nine times the diameter; it has a distinctive capital of spiral-shaped scrolls (No. 27 F). The earliest extant Ionic capitals (Lesbos, Neandria) exhibit volutes of a distinctly vegetable type with a palmette interposed. Early Ionic capitals from Delos and Athens form a link between these and later types. It seems probable then that the Ionic capital, like so many other decorative *motifs*, is ultimately to be derived from the lotus-bud of the Egyptians. At the same time it certainly underwent sundry modifications on its way from Egypt to Asia Minor; and to what influence these modifications should be attributed is not at present clear (No. 12 G). The form has also been traced to the spirals of early Mycenæan jewellery; either origin would be sufficient to account for its adoption in the later period.[1] Excavations in Cyprus also show that a similar spiral was in use in jewellery and domestic articles as early as 800 B.C. The method of striking volutes is a geometrical process easily acquired, and given in all books of the orders of architecture, or it can be formed by twisting a string around an inverted cone or a common whelk shell.

The **entablature** is ¼ of the column in height, and consists of: (*a.*) *Architrave:* in faces; (*b.*) *Frieze:* sometimes plain, but often

[1] For an interesting paper on the origin of the Ionic Volute, see R.I.B.A. Journal, 19 Dec., 1895; also the monograph by Otto Puckstein "Das Ionische Capitell," Berlin, 1887, and Perrot and Chipiez, "Grèce Archaique," p. 603.

with sculpture, or carving of continuous frieze-like character; (*c.*) *Cornice:* with no mutules, but with characteristic dentil ornament and sometimes also with the egg and dart (No. 26 N).

*N.B.*—The Doric order provides a setting for sculptor's work. The Ionic incorporates it with the order itself, usually in the form of carved enrichments on its main lines.

The most numerous **Remains** of the Ionic order are found in Asia Minor, while the Doric examples are chiefly in Greece and Sicily.

## IONIC EXAMPLES.

| | *Date.* | *Architect.* |
|---|---|---|
| The *Temple on the Ilissus at Athens.* (Destroyed by the Turks in 1780) (Nos. 17 E and 23 C). | B.C. 484 | |
| The *Temple of Nikè-Apteros* ("Wingless Victory") at Athens (No. 17 N). | B.C. 469 | Callicrates. |
| The *Propylæa at Athens* (the six internal columns only) (No. 17 N). | B.C. 437–32 | Mnesicles. |
| The *Erechtheion at Athens* (No. 17 M). (St. Pancras Church, London, is a modified copy). | B.C. 420 | |
| The *Temple of Apollo Epicurius at Bassæ* (The Internal order only) (No. 21 F, G, H). | B.C. 430 | Ictinus. |
| The *Temple of Artemis at Ephesus.* (One of the seven wonders of the world. Remains at the British Museum. Exceptional design, the columns having their lower portions enriched with sculptured figures). | B.C. 330 | Dinocrates. |
| The *Temple of Athena Polias at Priene.* . | B.C. 320 | Pythius. |
| The *Mausoleum at Halicarnassus* (page 63). | B.C. 354 | Satyrus and Pythius. |
| The *Philipeion at Olympia.* (A circular building with external Ionic colonnade and interior Corinthian semi-columns). | B.C. 338 | |
| The *Temple of Apollo-Didymaeus* near Miletus. | | |
| The *Temple of Dionysus at Teos.* . . . | | Hermogenes. |

In the plate (No. 23 C) is shown the Ionic order of the Temple on the Ilissus at Athens and the Roman treatment of the order after Scamozzi (No. 23 D).

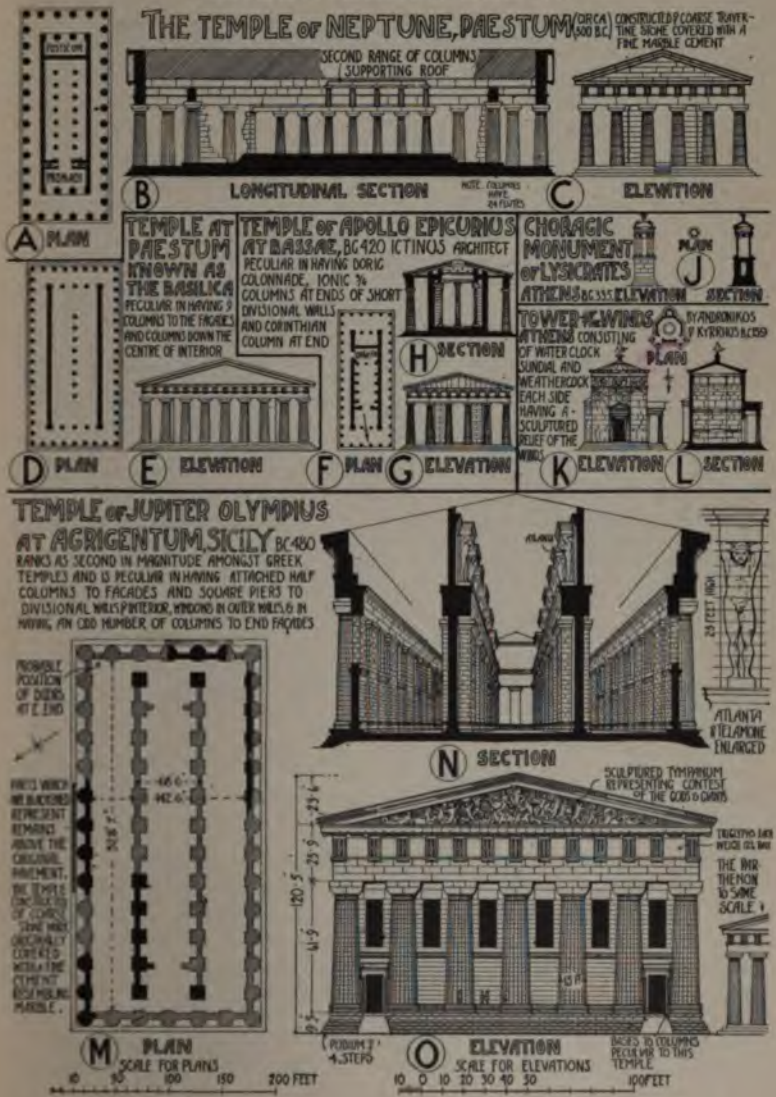
## THE CORINTHIAN ORDER

(No. 23 E) is still more ornate. It was little used by the Greeks. The height of the column is generally about ten times the diameter.

The base and shaft resemble the Ionic order.

The distinctive capital may have been based on the Ionic (No. 23 C), or borrowed from the bell-shaped capital of the

# GREEK EXAMPLES II.



Egyptians (No. 9 L), to which was added the spiral of the Assyrians (No. 12 G); it has a deep "bell" below, on which is worked a plain circlet of acanthus leaves in tiers. The Assyrian honeysuckle ornament occurs in the capital of the order that decorates the monument of Lysicrates at Athens (No. 23 E).

Prof. Baldwin Brown is of opinion that the foliage ornament carved on capitals is a copy of actual foliage, wreathed for festal purposes, round the heads of the posts of a porch.

The abacus to the capital is generally moulded, and the entablature, which is 2½ diameters of the column in height, bears a general resemblance to the Ionic, but with the addition of modillions or consoles and increased enrichments in the mouldings.

## CORINTHIAN EXAMPLES.

| | *Date.* | *Architect.* |
|---|---|---|
| The *Tholos at Epidauros* (No. 17 K). (Internal order earliest known example of Corinthian column. External Doric colonnade). | B.C. 4th cent. | Polycleitos the younger. |
| The *Choragic Monument of Lysicrates at Athens* (Nos. 21 J and 22). | B.C. 335 | |
| The *Philipeion at Olympia.* (The internal order of Corinthian half columns. External Ionic colonade). | B.C. 338 | |
| The *Tower of the Winds* (the Clepsydra of Andronicos of Cyrrhus) at Athens (No. 21 K L). | B.C. 100–35 | |
| *The Temple of Apollo Epicurius at Bassæ* (internally). | B.C. 430 | Ictinus. |
| *The Temple of Apollo Didymaeus near Miletus.* | | |
| *The Vestibule at Eleusis.* | | |

## GREEK THEATRES.

The Greek theatre was generally hollowed out of the slope of a hill near the city. It was unroofed and the performances took place in the day time. In plan (No. 24) it was usually rather more than a semicircle, the inside boundary of the auditorium forming about two-thirds of a regular circle. The auditorium consisted of tiers of marble seats, rising one above the other, often cut out of the solid rock. The circular "orchestra" or dancing place (corresponding to the stalls and pit of a modern theatre) was occupied by the chorus, who chanted and executed dances.

The orchestra was the "germ" of the Greek theatre, which was constructed more for choral than dramatic performances.

Those spectators who sat at the extremities of the two wings, thus faced towards the orchestra, but away from the stage. The



22. Choragic Monument of Lysicrates, Athens.



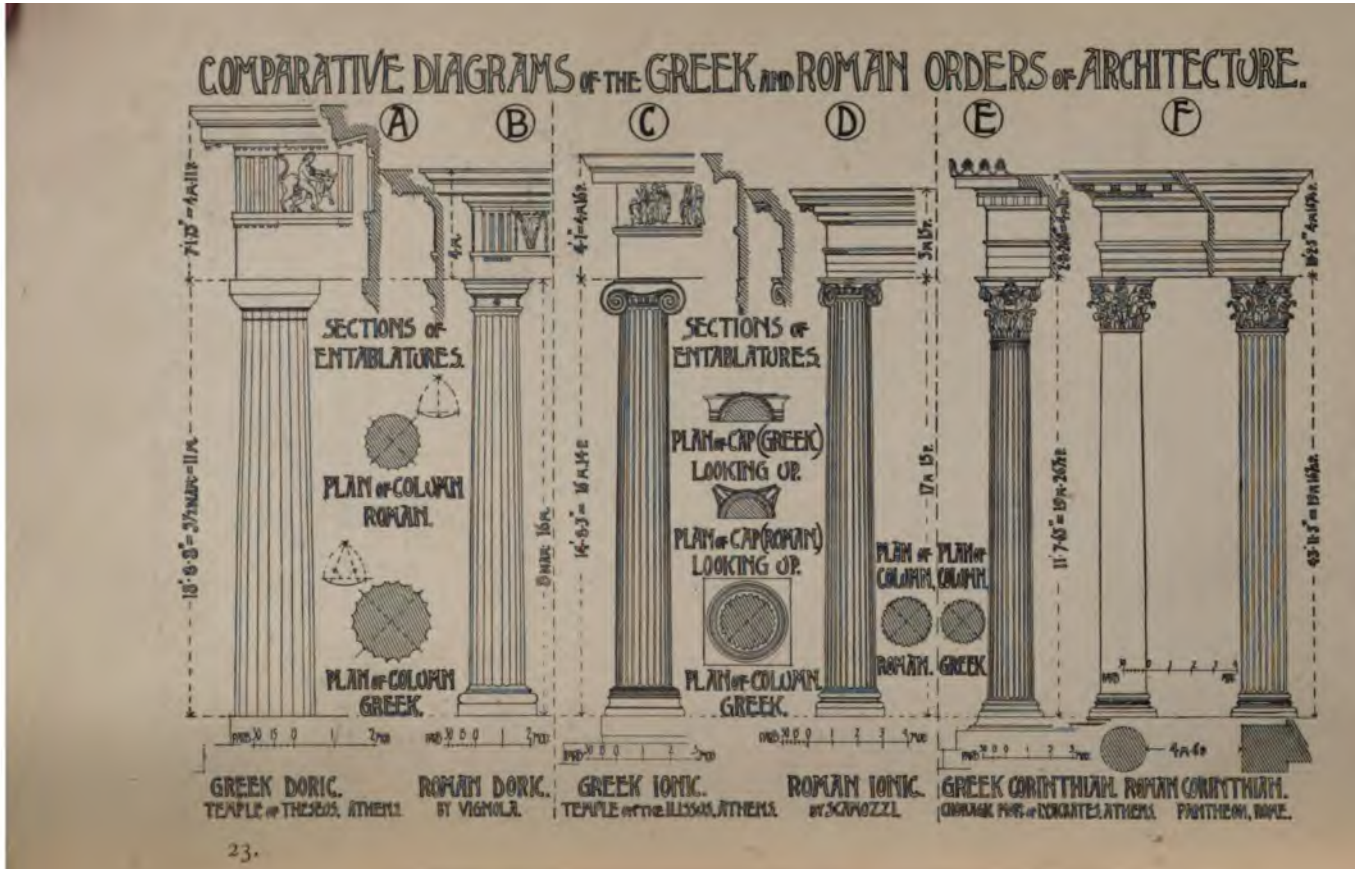
stage was known as the *logeion* or "speaking place," its back-wall being the *skénê* (= booth or tent for changing in); the latter name is preserved in the modern word "scene." The actors being few, the stage consisted of a long and narrow platform, with permanent background. To what height above the level of the orchestra this platform was raised is a question that has been much debated in recent years. The most probable view seems to be the following: (1.) In pre-Æschylean drama, before regular theatres were made, an actor mounted on a table, probably the table-altar of the god Dionysos, and held a dialogue with the dancers or chorus. The rude table-stage illustrated on some vases from South Italy may represent a local retention of this primitive custom. (2.) For the fifth century B.C. no direct evidence is available; but a low wooden stage is practically certain, connected by means of a ladder with the *orchestra*. (3.) The fourth century is the earliest period for which there is monumental evidence. At Megalopolis a platform of wood from 3 feet 3 inches to 4 feet 6 inches high appears probable, with a stone colonnade behind it. At Epidauros there was a wooden floor supported by a wall 12 feet high. (4.) In Hellenistic and Roman times, Vitruvius tells us, the Greek stage was 10 to 12 feet high. This statement is borne out by many extant examples. The theatre of Dionysos at Athens, completed B.C. 340 is the prototype of all Greek theatres, and was the one in which the plays of the great Athenian dramatists were produced. Thirty thousand spectators could be accommodated in it.

The theatre at Epidauros was constructed by the architect Polycleitos, and is the most beautiful as well as the best preserved example extant. The circle of the orchestra is complete, and is about 66 feet across, the entire theatre being 378 feet in diameter. Thirty-two rows of seats forming the lower division are separated by a broad passage (*diazoma*) from twenty rows above. Twenty-four flights of steps diverge as radii from bottom to top.

## THE PALACES AND DOMESTIC BUILDINGS.

At Tiryns, situated by the sea coast to the south-west of Athens, and at Mycenæ, remains have been discovered of recent years by Drs. Schliemann and Dörpfeld which are of the greatest interest in showing the general arrangement of these buildings (No. 14).

At Mycenæ, flights of steps lead to an outer courtyard, from which, by traversing a portico and vestibule, the *megaron*, or principal men's apartment, is reached. This was surrounded by a roof, open to the sky in the centre. From the *megaron* other chambers, whose uses are not defined, are entered. The women's


COMPARATIVE DIAGRAMS OF THE GREEK AND ROMAN ORDERS OF ARCHITECTURE.
A
B
C
D
E
F
SECTIONS OF ENTABLATURES.
PLAN OF COLUMN ROMAN.
PLAN OF COLUMN GREEK.
SECTIONS OF ENTABLATURES.
PLAN OF CAP (GREEK) LOOKING UP.
PLAN OF CAP (ROMAN) LOOKING UP.
PLAN OF COLUMN GREEK.
PLAN OF COLUMN ROMAN.
PLAN OF COLUMN GREEK.
GREEK DORIC.
TEMPLE OF THESEUS, ATHENS.
ROMAN DORIC.
BY VIGNOLA.
GREEK IONIC.
TEMPLE OF THE ILISSUS, ATHENS.
ROMAN IONIC.
BY SCAMOZZI.
GREEK CORINTHIAN.
CHORAGIC MONS. OF LYSICRATES, ATHENS.
ROMAN CORINTHIAN.
PANTHEON, ROME.

chambers are considered by some authorities to be planned so as to afford the greatest seclusion, while others, notably Prof. Ernest Gardner, hold that little or no attempt was made at seclusion, and bring strong evidence to bear from literary authorities, principally from Homer. The plans of domestic buildings seem to have resembled, on a smaller scale, the general arrangement of the palaces. But our knowledge of these is derived mainly from literary sources, unless the Greco-Roman houses of Pompeii may be taken as typical (No. 42 A, B) (see page 102).

### TOMBS.

The most important from an architectural point of view are found in Asia Minor. The most famous is that generally known as the **Mausoleum at Halicarnassus.** It was erected to the King Mausolus (B.C. 354) by his widow Artemisia, and consisted of a square plinth supporting a tomb-chamber, which was surrounded by Ionic columns and surmounted by a pyramidal roof with a marble quadriga and group of statuary at its apex (see page 65).

The architects were Satyrus and Pythius, and Scopas was the superintendent sculptor. Many fragments of this monument are in the British Museum.

The **Nereid monument** at Xanthus, remains of which are in the British Museum, and the **Lion Tomb** at Cnidus (the crowning figure being in the British Museum) were of a somewhat similar design but on a smaller scale. There are also other rock-cut tombs in Asia Minor and Cyrene in North Africa.

The "*Stelai*" or tomb stones, in the design of which the Greeks excelled, are characteristic. The "Street of Tombs" at Athens and the Museum at the same place, contain many examples. They are often ornamented with the Anthemion design (No. 28 E) and some can be seen at the British Museum.

### PUBLIC BUILDINGS.

These may be summarized briefly. The *Stadia* were oblong enclosures forming a race course and surrounded by rising tiers of seats for spectators, as at Athens, Delphi, Epidauros, etc.

The *Palæstra* or gymnasia, the prototype of the Roman Thermæ, comprised exercise courts, tanks for bathers, and exedræ (or recesses) for lectures, etc., provided with seats for spectators.

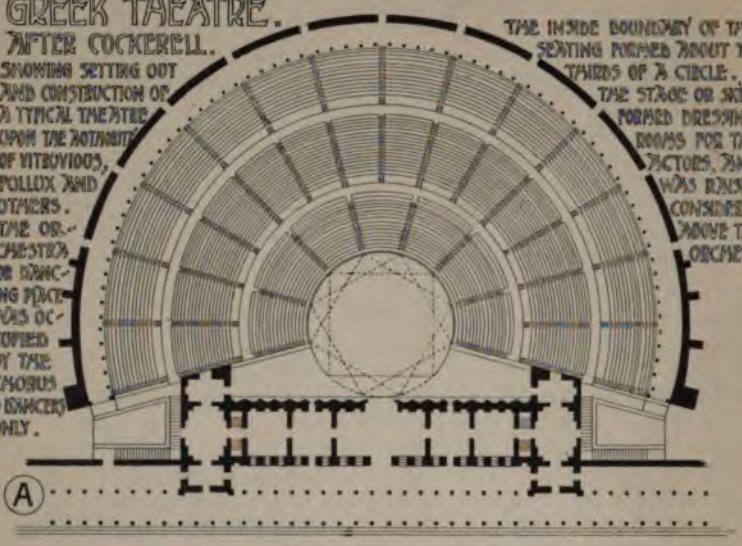
## 4. COMPARATIVE.

A. **Plans** (No. 17) of Greek buildings were simple, well judged, nicely balanced, and symmetrical. (Exceptions to symmetry of plan: the Erechtheion (No. 17 M), and the Propylæa (No. 17 N),

## GREEK THEATRE.
AFTER COCKERELL.

SHOWING SETTING OUT AND CONSTRUCTION OF A TYPICAL THEATRE UPON THE AUTHORITY OF VITRUVIOUS, POLLUX AND OTHERS. THE ORCHESTRA OR DANCING PLACE WAS OCCUPIED BY THE CHORUS & DANCERS ONLY.

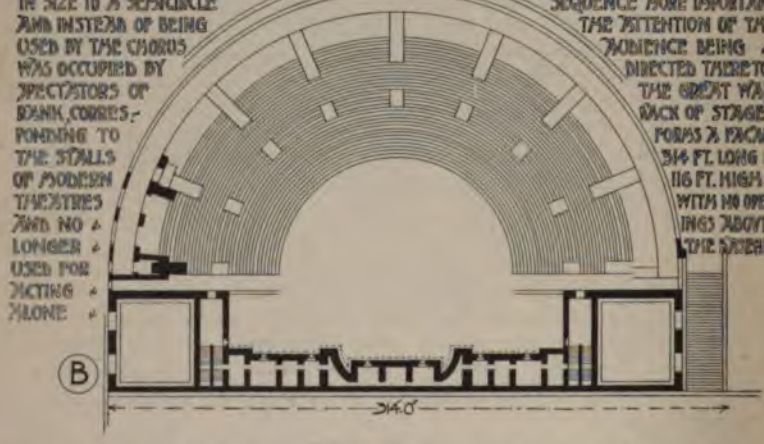
THE INSIDE BOUNDARY OF THE SEATING FORMED ABOUT TWO THIRDS OF A CIRCLE. THE STAGE OR SCENE FORMED DRESSING ROOMS FOR THE ACTORS, AND WAS RAISED CONSIDERABLY ABOVE THE ORCHESTRA




## ROMAN THEATRE AT ORANGE, SOUTH OF FRANCE.

THE ORCHESTRA WAS RESTRICTED IN SIZE TO A SEMICIRCLE AND INSTEAD OF BEING USED BY THE CHORUS, WAS OCCUPIED BY SPECTATORS OF RANK, CORRESPONDING TO THE STALLS OF MODERN THEATRES AND NO LONGER USED FOR ACTING ALONE.

THE STAGE BECAME IN CONSEQUENCE MORE IMPORTANT THE ATTENTION OF THE AUDIENCE BEING DIRECTED THERETO. THE GREAT WALL BACK OF STAGE FORMS A FACADE 334 FT. LONG BY 116 FT. HIGH WITH NO OPENINGS ABOVE THE CORNICE




COMPARATIVE EXAMPLES OF GREEK AND ROMAN THEATRES.

at Athens, and probably the private houses.) Plans involving the use of the orders were rarely extensive or complicated, being generally very regular; yet certain departures were made from the general rules, either for the purposes of effect or from necessity, as when columns were placed nearer together at the angles of Doric temples (No. 16 A). Moreover, the central intercolumniation at the Propylæa at Athens was wider than the others, probably for the passage of chariots.

Greek temples might be described as Egyptian turned inside out; the courtyard, porticoes, and columned halls being replaced by a small cella colonnaded on every face. The relations and proportions of these columns constitute the charm of Greek exteriors.

Circular planning was also adopted (No. 17 K), as in the theatres and choragic monuments, and octagonal planning, as in the Tower of the Winds at Athens (No. 21 K, L).

B. **Walls.**—The construction of walls was solid and exact. No mortar was used, the joints being extremely fine, and the finished surface of the walls was obtained, by a final rubbing down of the surface, by slave labour. The material was marble, which was accountable for the fine smooth face and exact jointing displayed. Hollow wall construction in the entablature was practised at the Parthenon, to lessen the weight upon the architraves, and perhaps for economy of material (No. 16). In temples the cella walls were mostly masked behind columns (No. 17). The base of a temple was always well marked and defined by steps, giving a real and apparent solidity to the structure (Nos. 16 A and 18). The top of the walls was always finished by a cornice, intermediate cornices being unknown.

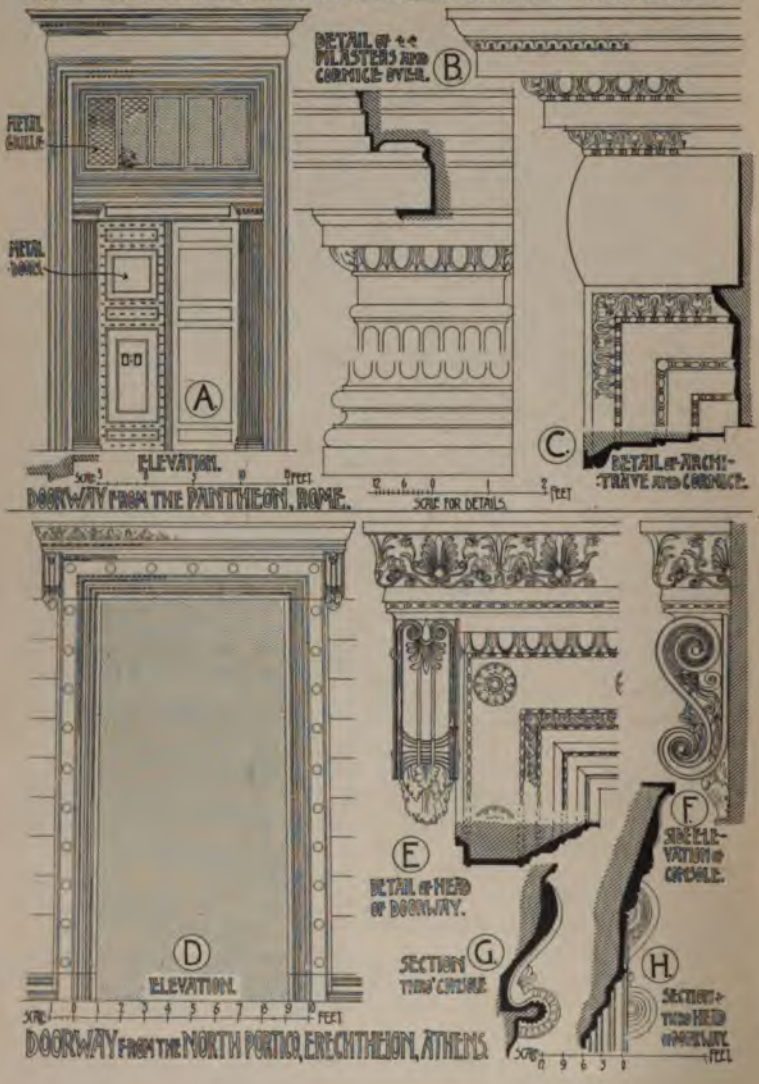
No towers were used in Greek architecture except in the case of fortified walls, the nearest approach to towers being the lofty mausoleum at Halicarnassus[1] and the Lion Tomb at Cnidus, both in Asia Minor (see page 63).

C. **Openings.**—Greek architecture was essentially a trabeated or beam-construction style. All openings were spanned by a lintel, *i.e.*, are square-headed. The trabeated construction necessitated great severity in treatment; the supports were of necessity close together, because stone lintels could not be obtained beyond a certain length. Openings are often sloped inwards towards the top, as at the doorway to the Erechtheion (No. 25 D). Relief to the façades of temples was obtained by the shadow of the openings between the columns (No. 20).

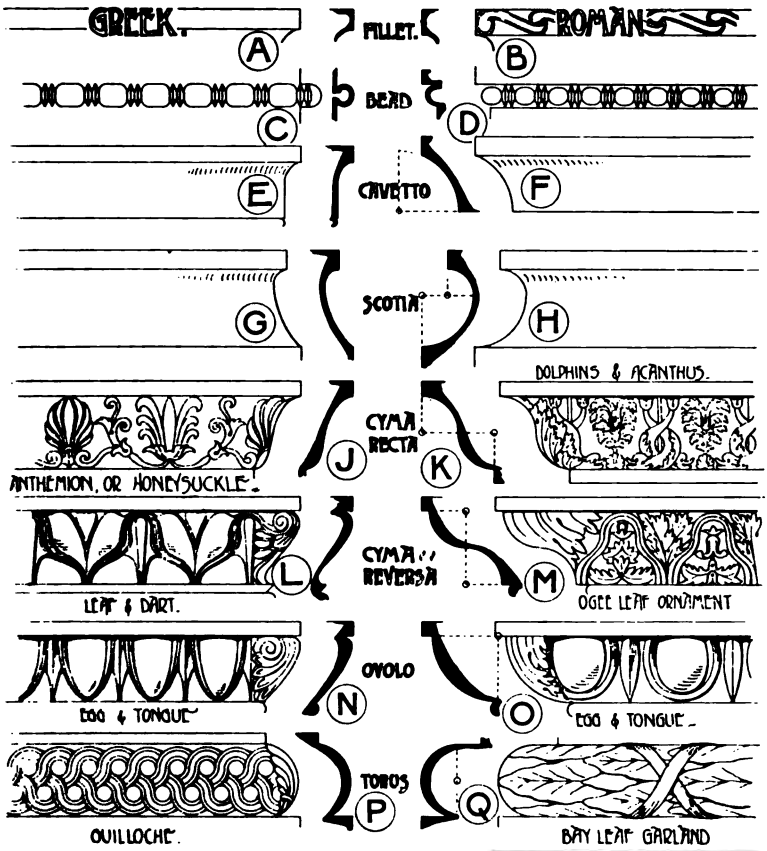
D. **Roofs.**—These coincided with the outline of the pediment. In temples they were carried by internal columns or by the walls

[1] For a model and remains of this structure, lately re-arranged, the British Museum should be visited.

# COMPARATIVE EXAMPLES of GREEK AND ROMAN DOORWAYS.

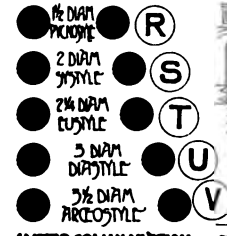


# COMPARISON OF GREEK AND ROMAN MOULDINGS I.

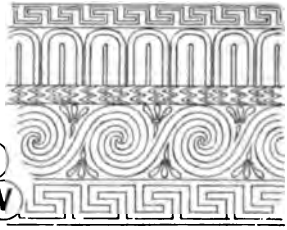





INCISED ORNAMENT OF WHITE MARBLE, FROM ATHENS (W)




INTERCOLUMNIATION.



PAINTED TERRACOTTA CORNICE. (X)

of the cella, and were framed in timber and covered with marble tiles. Internal ceilings were probably also framed into deep coffers.

E. **Columns.**—They are generally the whole height of the building. As the orders have been fully treated under examples (page 53), we summarize only as follows:

The forerunner of the **Doric** type is perhaps exemplified at Beni-Hasân (No. 5), and Deir el-Bahari, Egypt, and a perfect example is seen in the Parthenon and in the Theseion (Nos. 20 and 23 A).

The **Ionic** was probably introduced from Asia; the most perfect form is to be found at the Erechtheion and the Temple on the Ilissus (No. 23 C).

The **Corinthian** is considered by some as the natural outcome of the Ionic; it was sparsely used by the Greeks, the finest example being the monument of Lysicrates at Athens (Nos. 22 and 23 E), in which the student may see that the spiral scroll of the Ionic is retained in a somewhat modified form, while the lower portion of the capital is surrounded by acanthus leaves.

The Temple of Jupiter Olympius is also a fine example on which the Romans appear to have founded their own special type.

Caryatides, or carved human figures used in the place of columns, are of Asiatic origin, and were employed by the Greeks, as at the Erechtheion at Athens (No. 28 M).

F. **Mouldings.**—Refer to sketches of Greek mouldings compared with Roman (Nos. 26 and 27). Mouldings are the means by which an architect draws a line upon his building.

A true knowledge of the effect of contour is to be best obtained from actual work rather than from drawings, and the examples at the British Museum must be studied.

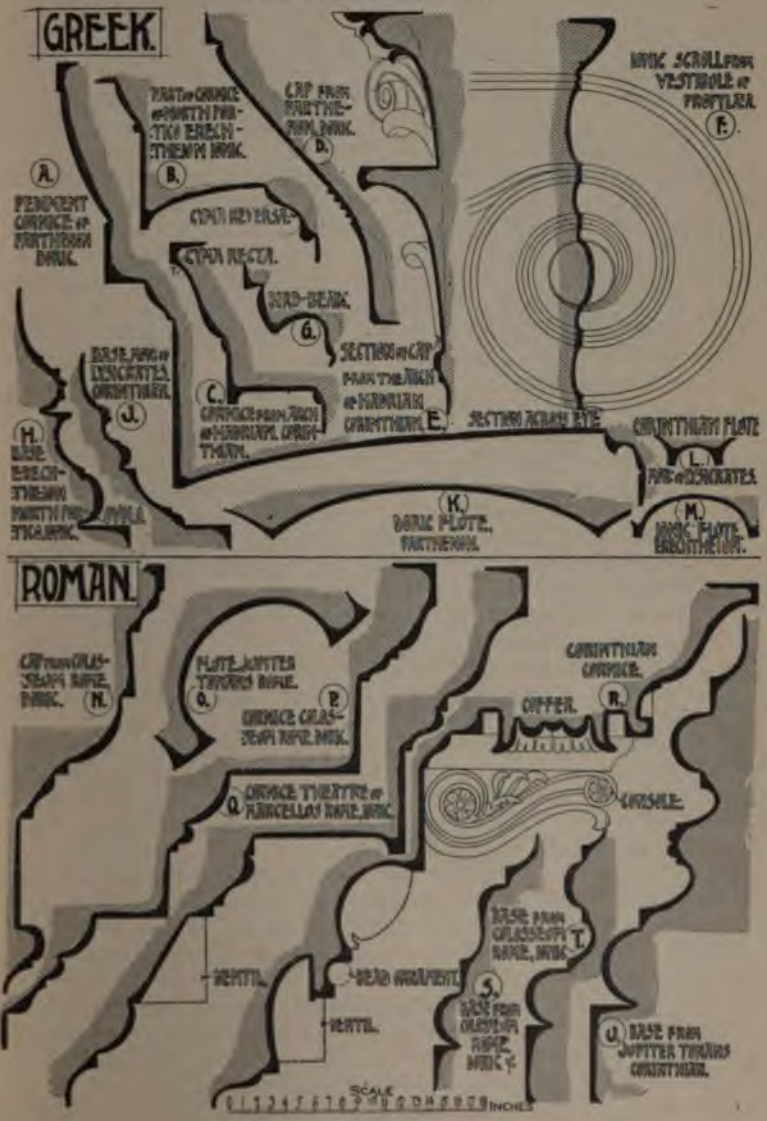
The principal characteristic of Greek mouldings was refinement. The influence of an almost continuous sunshine, a clear atmosphere, and the hard marble material, had naturally great influence in the production of those delicate contours.

Greek mouldings are not parts of circles; they were probably drawn by hand, but approach very closely to various conic sections, as parabolas, hyperbolas, and ellipses.

As a general rule the lines of the enrichment or carving on any Greek moulding correspond to the profile of the moulding on which it is carved. This is a rule which was rarely departed from, and therefore, is one worthy of notice. The profile of the moulding is thus emphasized by the expression in an enriched form of its own curvature.

Notice the examples given from full-size sections taken at the Parthenon and the Erechtheion (No. 27).

# COMPARISON OF GREEK AND ROMAN MOULDINGS. II.



The following are the most important mouldings in a classified list:

(*a.*) The **cyma-recta** (Hogarth's "line of beauty"). When enriched it is carved with the honey-suckle ornament, whose outline corresponds with the section (No. 26 J).

(*b.*) The **cyma reversa.** When enriched it is carved with the water-lily and tongue (No. 26 L).

(*c.*) The **ovolo** (egg-like), when enriched is carved with the egg and dart, or egg and tongue ornament (No. 26 N).

(*d.*) The **fillet**, a small plain face to separate other mouldings (No. 26 A).

(*e.*) The **bead** serves much the same purpose as the fillet, and approaches a circle in section. When enriched it is carved with beads, which in fact gave the name to the moulding (No. 26 C).

(*f.*) The **cavetto** is a simple hollow, and is the upper part of the cyma-recta (No. 26 E).

(*g.*) The **scotia** is the deep hollow occurring in bases, and is generally not enriched (No. 26 G).

(*h.*) The **torus** is really a magnified bead moulding. When enriched it is carved with the guilloche ornament, or with bundles of leaves tied with bands (No. 26 P).

(*i.*) **bird's-beak** moulding is emphatically Greek; it occurs chiefly in the Doric order, has great value for the deep shadow it gives; as a section it is very suitable for the English climate (No. 27 G).

(*j.*) The **corona**, the vertical face of the crowning portion of the cornice, was often painted with a Greek "fret" pattern (No. 16 A).

G. **Ornament** (No. 28).—The acanthus leaf (No. 28 G) and scroll play an important part in Greek ornamentation. The leaf grows wild in the south of Europe, in two varieties: That with broad blunt tips, and that with pointed and narrow lobes. Note the Greek preference for the pointed form.

The acanthus is found in the Corinthian cap (No. 23 E), and is also seen in the crowning finial of the choragic monument of Lysicrates (No. 28 D). The scroll which accompanies the leaf acts as a stalk, and is square in section with sharp edges; the leaf has deeply drilled eyes.

The honey-suckle ornament (or Anthemion) is frequently used, especially round antæ-caps and on "cyma-recta" mouldings (Nos. 26 J and 28 F).

The sculpture employed by the Greeks was of the highest order. Ex. in the Parthenon: The great frieze round the cella, the tympana of the pediments, and the metopes, or square spaces, in

# GREEK ORNAMENT



A

HONEYSUCKLE ORNAMENT FROM THE ERECTHEION.



B C

LION'S HEAD, FORMING ORNAMENTS ALONG THE CORNICE OF GREEK TEMPLES, & FORMING OUTLETS FOR RAIN WATER FROM ROOF.

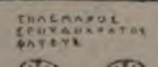


CROWNING FROM THE OF ??? ATHENS. BY ?????.

ORNAMENT MONUMENT LYSICRATES. RESTORED LOVIOT.

D





E STELE HEAD.

TOTAL LENGTH 324 FT. FROM THE MUSEUM AT ATHENS



F

FROM THE ERECTHEION AT ATHENS.

ANTAE CAP, ENRICHED WITH HONEYSUCKLE EGG & TORUS, LEAF & DART AND HEAD ORNAMENT.



H

METOPE FROM THE PARTHENON.



PORTION OF FRIEZE FROM THE PARTHENON.



G J

ACANTHUS ORNAMENT FROM TEMPLE OF EPIDAURUS.



K L

CONSOLE FROM DOORWAY AT THE ERECTHEION.



M

PORTION OF CARYATID FIGURE FROM ATHENS.



N

FROM THE MUSEUM ATHENS

ANTEFIXA ORNAMENT TO COVER JOINT OF TILES ALONG EAVES OF ROOF

the frieze (No. 28 G, H). In later work the Caryatides, as at the Erechtheion (No. 28 M). At Pergamon, in Asia Minor, the altar of Zeus had magnificent sculptures, of which the great frieze known as the "Giganto-machia" is now in the Berlin Museum, casts of some being at South Kensington.

Colour appears to have been largely used, and many traces are left.

Carefully prepared cement appears to have been used as a thin covering to stone and brick, as at the Greek temples at Pæstum and in those throughout Sicily, as a decorative material to receive wall paintings or colour decoration which was almost universal in Greek buildings, particularly those of the Doric order. This cement facing was also capable of a high polish, and as Vitruvius remarks, well-polished stucco would reflect like a mirror.

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The student should visit the Greek Court at the Crystal Palace for the sake of the splendid model of the Parthenon façade, and also the British Museum for actual fragments of the sculptures from the Temples.




29.

# ROMAN ARCHITECTURE.

"Immortal glories in my mind revive
When Rome's exalted beauties I descry
Magnificent in piles of ruin lie.
An amphitheatre's amazing height
Here fills my eye with terror and delight,
That on its public shows unpeopled Rome,
And held uncrowded nations in its womb;
Here pillars rough with sculpture pierce the skies;
And here the proud triumphal arches rise,
Where the old Romans deathless acts displayed."

## 1. INFLUENCES.

**i. Geographical.**—The map (No. 29) will show that the sea coast of Italy, although the peninsula is long and narrow, is not nearly so much broken up into bays, or natural harbours, as the shore line of Greece, neither are there so many islands studded along its coasts. Again, although many parts of Italy are mountainous—the great chain of the Apennines running from one end of the peninsula to the other—yet the whole land is not divided up into little valleys in the same way as is the greater part of Greece.

We may therefore with fair accuracy compare the Greek and Italian nations in these respects: (*a.*) The Romans never became a seafaring people as the Greeks did, nor did they send out colonists of the same description to all parts of the world that they knew. (*b.*) There were never many equal and rival cities in Italy as in Greece, and the small Italian towns, being less jealous of their separate independence, and more ready to join in leagues, the Roman power could be built up by a gradual absorption of small states, a process that was never completed by Athens or Sparta. The position of Italy enabled her to act as the intermediary in spreading over the continent of Europe the arts of civilization.

ii. **Geological.**—The geological formation of Italy differs from that of Greece, where the chief and almost the only building material is marble. In Italy besides marble we note that stone, brick, and terra-cotta, especially the two former, are largely used even for the more important buildings. In Rome the following materials were at hand: *Travertine*, a hard limestone from Tivoli; *Tufa*, a volcanic substance of which the hills of Rome are mainly composed, and *Peperino*, a stone of volcanic origin from Mount Albano. Besides these, *Lava*, poured out from extinct volcanoes near Rome, *Pozzolana*, a volcanic substance having the property, when mixed with lime, of hydraulicity, *i.e.*, of setting hard under water, and excellent *sand* and *gravel* were plentiful. The existence of *Pozzolana* (a clean sandy earth) found lying in thick strata round Rome gave the Romans a material which, as Prof. Middleton says, has contributed largely to the durability of Roman architecture. It has extraordinary properties of hardness, strength and durability when mixed into concrete with lime. Brick, stone or marble were used as a facing for walling, composed generally of concrete. Alabasters, porphyries and marbles of all kinds were laid under contribution for decorative purposes, being dug out of countless Oriental quarries by whole armies of workmen. Roman architecture, as it spread itself over the whole of the then known world, would be influenced naturally by the materials found in the various parts where it planted itself, but concrete in conjunction with brick and stone casing or banding was the favourite material. In Syria and Egypt, notably at Palmyra and Baalbec, the local quarries supplied stones of enormous size.

iii. **Climate.**—The north has the climate of the temperate region of continental Europe, central Italy is more genial and sunny, while the south is almost tropical.

iv. **Religion.**—The heathen religion of ancient Rome being looked upon as part of the constitution of the state, the worship of the gods came eventually to be kept up only as a matter of state

policy. The emperor then received divine honours, and may almost be described as the leader of the Pantheon of deities, embraced by the tolerant and wide-spreading Roman rule. Officialism therefore naturally stamped its character on the temple architecture.

**v. Social and Political.**—In early times we find three chief nations dwelling in the peninsula. In the central portion (or Etruria) lived the Tuscans, whose origin is doubtful; they were probably an Aryan people, who appear to have been settled in Italy before authentic history begins; they were great builders, as we shall notice later. In the South of Italy, the Greeks had planted many colonies, which were included in the name of "Magna Græcia." The remainder of Italy (exclusive of Cisalpine Gaul) was occupied by tribes sprung from the same Aryan stock as the Greek, and the common forefathers of both must have stayed together after they had parted off from the forefathers of the Celts, Teutons and others. But long before history begins the Greeks and Italians had separated into distinct nations, and the Italians had further split up into separate nations among themselves. The common form of government in ancient Italy resembled that of Greece, consisting in towns or districts joined together in leagues. Rome was first governed by chosen kings, aided by a senate and an assembly of the people. The kings appear to have been driven out about B.C. 500. The commonwealth succeeded, and was followed by the Empire, which commenced with Augustus Cæsar in B.C. 27.

**vi. Historical.**—The foundation of Rome is an uncertain date. The republic which succeeded the Kings engaged in wars with its neighbours, and conquered several Etruscan cities, meeting, however, with defeat in B.C. 390, at the hands of the Gauls, who continued for some time to hold the northern part of Italy. About B.C. 343 began the Roman conquest of the whole of Italy, which was effected in about sixty years, the dominion of a city over cities. Then came the wars with peoples outside of Italy, Pyrrhus, King of Epirus, being subdued, and the first great war against Carthage brought to a conclusion, in B.C. 241. The beginning of the Roman provinces was made with Sicily in B.C. 241.

The second Punic war was the most severe struggle in which the Romans had engaged. Hannibal, the great Carthaginian general, entering Italy from Spain, defeated all the Roman armies, and maintained himself in Italy until recalled by a counter attack of the Romans, under Scipio, upon Carthage itself.

The third Punic war (B.C. 149–146) ended in the total destruction of Carthage, whose territory became a Roman province. The conquest of Macedonia and Greece was also proceeding, and was effected in the same year as the destruction of Carthage.

Greece formed a stepping stone to Western Asia, which gradually acknowledged the Roman power, until in B.C. 133 it also became a province. The conquest of Syria followed, the Roman empire extending from the ocean to the Euphrates, while Cæsar's campaigns in Gaul in B.C. 59 made the Rhine and the English Channel its northern boundaries. In B.C. 55 Cæsar crossed into Britain.

This tide of conquest swept on in spite of civil war at home, and eventually rendered the empire a political necessity owing to the difficulty of governing so many provinces under the previous system. On Pompey's defeat at Pharsalia, Julius Cæsar remained without a rival, but was murdered in B.C. 44. Then followed a period of great confusion lasting 13 years. The *Triumvirate*, consisting of Marcus Antonius, Caius Octavius (great nephew to Cæsar) and Marcus Æmilius Lepidus, were opposed to Brutus and Cassius, and eventually defeated them. On the defeat of Antony at Aktion, Augustus Cæsar (Cæsar's nephew) was made emperor B.C. 27, and governed till his death, A.D. 14. The Greek campaigns induced the importation of Greek artists and artistic spoils.

This period was the "Augustan" age of literature; the poets Virgil, Horace, and Ovid, and Livy the historian were all contemporaries. Following Augustus came a long line of emperors, and under Trajan (A.D. 98–117) the empire reached its greatest extent. Italy went out of cultivation and depended on imported corn; a turbulent populace, and the huge armies required to keep in check the barbarian tribes on every frontier, dominated the government. Emperors soon chosen were sooner murdered, and the chaos that gradually set in weakened the fabric of the empire.

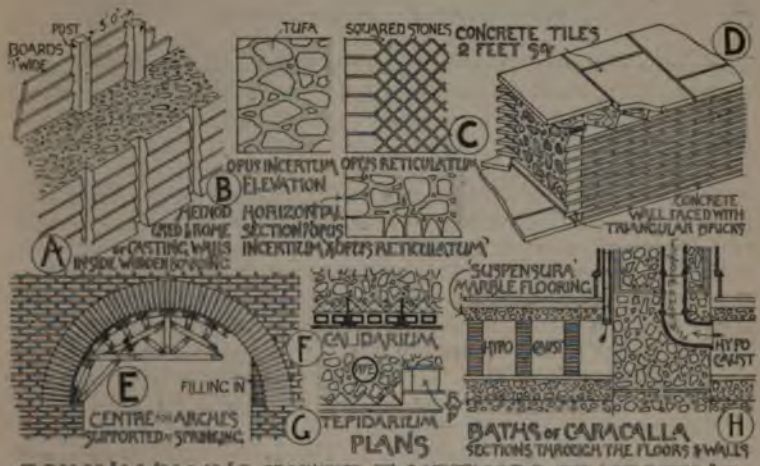
Architecture fell into complete decay until the vigorous efforts of Constantine did something to revive it. The force, in fact, that had been growing up was Christianity, which under the latter emperor obtained official recognition. (See section on Early Christian Architecture, page 113.)

## 2. ARCHITECTURAL CHARACTER.

Roman architecture proper may be said to have lasted from the first to the fourth century A.D.

The Romans adopted the columnar and trabeated style of the Greeks, and joined to it the Arch, the Vault, and the Dome, which it is presumed they borrowed from the Etruscans. The union of **beam and arch** is the keynote of the style in its earliest developments.

The Colosseum (Nos. 40 and 41) at Rome is a good example.




## ROMAN WALLING OF CONCRETE WITH BRICK FACING & METHODS OF HEATING




## ROMAN VAULTING AND DOMES OF CONCRETE WITH BRICK FACING

## ROMAN SYSTEM OF CONSTRUCTION

The piers between the arches on the different storeys are strengthened by the columns applied to them; and thus the columns without doubt act the part of buttresses; the column has become part of the wall, and does not any longer carry its entablature unaided.

This introduction of the arch as an architectural form led, through the basilica, to the construction of those glorious Gothic cathedrals, which were erected in the Middle Ages.

We have been accustomed, in Greek architecture, to buildings of only one storey in height; now, however, owing to the varying needs of the Romans, we find buildings of several storeys; and the orders, with column and entablature complete, are piled one on top of the other. Thus the orders in great measure ceased to be a constructive element, and became decorative features.

The Temples follow in the main the Greek type, but with far less refinement in design and detail. The Baths for recreation and study, the Amphitheatres, Aqueducts, Bridges, Tombs, Basilicas, and the Fora, are the monuments of Roman greatness. Herein was shown great constructive and engineering ability, and a power to use the materials to hand, with the best possible results (see page 92 as to the Baths of Caracalla).

Conquest, wealth, and power were the ideals of the Romans, and these are well expressed in their architecture.

In the earlier periods the Romans employed the Greek system of jointed stone, close-fitting, and without mortar; but in this case it was often as a casing to the thick masses of walling composed of various kinds of concrete.

The Greek method of building with large materials, blocks of stone, rough or cut, and without mortar, continued, however, to the last century before our era, being general in the monuments of the Republic. But the practical spirit of the Romans and their instinctive taste for simple things urged them to make in ordinary cases a more economical use of their immense riches. Instead of composing the body of their monuments of large blocks they sought by means of a procedure less expensive, and by expedients until then unknown, to inaugurate the employment in large masses of the commonest materials reduced into fragments and bound together by mortar. The Romans were the first to found, upon the employment of such elements, a system of monumental construction which, with rare sagacity, they adapted to their new needs. They profited by the facility with which walling composed of pebbles and mortar accommodates itself to the most diverse situations. Thus they contrived a method of building, as it were, universal, which was used with success in every district of the empire.

The materials which they made use of were not special to any country. The most shapeless ashlar stones, pieces of hard rock the least fit for cutting, small fragments of stone which would be rejected in our days as quarry débris, sufficed for the most important projects. The craftsmanship required was perfectly simple, for rough labour only sufficed. The buildings, composed, as it were, of plastic material, were modelled at the will of the architect, and could be erected by hands quite unused to the art of building. Cheap and plentiful labour, at hand everywhere in the empire, and at the direction of the central authority, tended to uniformity. To carry their schemes into execution the Romans had only to employ a certain amount of labour, it being immaterial by whom it was supplied—whether by slaves found on the spot itself, subjects liable to statute labour, or the Roman armies themselves—while the legal punishment of condemnation to working on public buildings was largely enforced. Any of these means, in default of trained masons, satisfied the needs of the builder, as all the operations consisted only in mixing the mortar and spreading it over the broken stones in uniform beds. From the time that concrete displaced the ashlar masonry of the Greeks, and allowed of the using of the vast resources of unskilled labour, the style of the Romans grew to be everywhere uniform and above the influence of local conditions; for through the colonies and legionary camps the new methods penetrated to the extremities of the empire. They could improvise, at all the points where the rule of Rome extended, entire cities, which, recalling the metropolis, became in their turn centres whence radiated the architectural ideas as well as the manners and customs of Rome.

**Vaulting.**—The most important of all the constructive features employed by the Romans was the semicircular arch and the hemispherical vaults, the latter being further developed into the cross-vault (Nos. 30 J, 36 A, C, D, and 83 A). The arch had been previously used in Assyria, and the Etruscans, from whom it is supposed the Romans obtained it, had also used it; but the Romans were the first to carry it out as a structural system, and by its use they covered the largest areas even now in existence. They not only used the semicircular or waggon-headed vault, which rests on only two sides of the covered rectangle, but they invented the cross-vault, which exerts its whole pressure on the angles of the compartment. The beauty and advantages of this kind of vaulting led the Romans to use it over all corridors and long apartments (Nos. 36 A, C, D, and 38 K), thus throwing the pressure of the vaulting on the points of division and leaving the remainder of the walls free for openings, such as windows.

The Romans also systematized the use of the Dome or Cupola

(*cupa* = cup) with which they covered their circular apartments (Nos. 30 L, 32 A, B, and 34 A). In construction there is considerable difference between an arch and a dome. The latter, if of stone, consists of a series of horizontal arches, and each course being completed, it is in a condition of stability; if formed of concrete there is little or no thrust on the abutments.

These three systems sufficed for everything, and the combination of their plans were simply the necessary outcome of these methods. For example, if an oblong hall were built whose lateral walls were sufficiently thick, they covered it with a cradle or half-cylinder vault; if a square hall, they covered it with a groined vault. If the oblong hall were very wide, and its side walls had to be pierced by large openings, thereby presenting only isolated points of support, they divided it into square bays (generally three, in order to get a central bay), and covered it with three groined vaults (No. 36 A), that is to say, a longitudinal half-cylinder, intersected by three half-cylinders of equal diameter with the first—if a circular hall were built they covered it with a semicircular dome (Nos. 32 and 33)—to such varying needs did the new method of the arch lend itself.

As to the *arcuated system of construction*, it will be seen at once that the employment of small materials influenced very largely, if not wholly, the development of the vault and dome—so essentially a part of Roman architecture.

The immense coherence of concrete formed of *Pozzolana* (see page 74) and lime was important. By its use concrete vaults and domes of enormous size were constructed. These were cast in one solid mass and covered the space without lateral thrust, having the form, without the principle, of the arch. If in a true arch formed of brick or stone, radiating voussoirs had been used, the walls would possibly have been pushed out.

As Prof. Middleton has pointed out, the Roman use of concrete for vaults, was more striking and daring than their use of it for walls, and had an important effect on the general forms of Roman architecture.

The use of buttresses had not been systematized, and it would have been impossible for the Romans to vault their enormous spans if their vaulting was composed of brick or of masonry as in mediæval times.

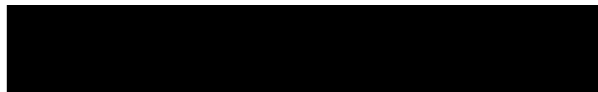
The Roman concrete vault, he infers, was quite devoid of external thrust and covered its space with the rigidity of a metal lid, or inverted porcelain cup.

In many cases (see No. 30) as the Baths of Caracalla and Basilica of Constantine, brick arches are embedded in the concrete vaults at various points, especially at the 'groins,' but these



31. Maison Carrée, Nîmes. —

Roman (Before Christ) 500 - 27 B.C.



are merely superficial, like the brick facing to walls, and only tail a few inches into the mass of concrete vault, which is frequently as much as 6 feet thick.

Vaults of concrete had nowhere a usage so general as amongst the Romans; every ruin is filled with their débris, besides the fragments of masonry that exist as witnesses of the original structure. Such vaults were often composed of brick ribs as guiding or permanent centres, with a filling of concrete. They are found in an almost endless variety, and may be seen covering rectangular enclosures, rotundas, exedræ (No. 30 K), and recesses which are polygonal on plan. Being executed to rough moulds the system lent itself equally well to the most varied plans, and to the most numerous needs as regards distribution. The majestic simplicity of their forms gives to these edifices a severe grandeur which agrees well with the monuments of Roman greatness, and is specially appropriate to their material needs.

The Romans, then, were the first to generalize a system of vaulting at the end of the first century B.C., in making it simple and practicable by the employment of small material artificially bound together with mortar. The effect was far-reaching, and only here need be noted its effect on planning, in which it became necessary that the points of support should have piers of sufficient size, which resulted in the production of structures as complex and as suited to the needs of the Romans as the simple Greek structures were to the Greeks.

The various kinds of *walling* have been systematized by Choisy into (*a*) walling of concrete-filling with stone or brick facing, the concrete being in layers, and compressed; (*b*) walling in which each stone is placed directly on a bed of mortar; and (*c*) walling in which the separate employment of lime and pebbles was effected without previous mixing, but simply by being cast *in situ* and held in position by upright posts and horizontal boards until set (No. 30 A). This was the most usual method—quick and rapid of execution, in which motives of economy occupied the mind of the Roman architect.

In regard to the finishing or decoration of Roman buildings, sculpture was used as a mere decorative accessory, having little connexion with the architecture. A Roman edifice built of concrete or bricks might receive a decoration of any or every kind of marble having no absolutely necessary connexion with the general character of the building. Such decoration was a kind of second structure whose richness did not belie the material used, nor the manner of using it. For when in Roman buildings the decoration was foreign to the structure, there was no attempt to conceal its own purpose.

The Romans made it their chief object to employ every decorative material then obtainable—granite, jasper, porphyry, marble, painted stucco, bronze, and mosaic were used with profusion to produce the rich effect in which they revelled. Roman architecture was a clothed body; the dress being properly fashioned, it neither embarrassed nor distorted the form of the body, but was always a dress, which, as such, was rational and appropriate—rich for the rich, simple for the poor.

The abundant use of statues by the Romans led to the adoption of the niche (Nos. 30 K, 32 B, 34 A), a feature unknown in Greek architecture, as a convenient mode of inserting them within the surface of walls. The niche was either semicircular on plan and covered with a semi-dome (No. 30 K), or rectangular and vaulted semi-cylindrically (see plan of Pantheon, No. 32), and they occasionally have a frontispiece of columns.

## 3. EXAMPLES.

The Etruscans were great builders, and knew the full value of the arch for constructive purposes, using it extensively in their works.

The architectural remains of the Etruscans consist chiefly of walls and tombs, which have a great similarity to the early Pelasgic work at Tiryns and Mycenæ. The walls are remarkable for their great solidity of construction, and for the cyclopean masonry, where huge masses of stone are piled up without the use of cement, or mortar of any kind. The "Cloaca Maxima," or great drain of Rome, admittedly an Etruscan work, has a semicircular arch of from 10 to 13 feet span, in three rings of arch stones. Moreover, in bridges, aqueducts, and city gates, the radiating arch was used by them at an early date.

### THE BUILDINGS OF THE ROMANS,

which were many and varied, are difficult to summarize in a short space. Remains are found throughout Europe, as at the Roman settlements of Nimes and Arles in France; also at Tarragona and Segovia in Spain, at Trèves in Germany, at Constantine in North Africa, at Baalbec and Palmyra in Asia, and at other places. (See map of Roman Empire, No. 29).

In England there are many remains. (See under English Architecture, page 227.)

## THE TEMPLES.

*Note.—The orders are described in the comparative table at the end, page* 107.

The Roman temples resembled in many respects, and were founded on, those of Greece. A sheet of Greek plans showing the technical names for many of these is given, which it is hoped will be useful to the student (No. 17).

The characteristic temple has no side colonnades, as are found in Greek examples, the order of columns being attached to the flank walls. Roman temples had steps at the portico ends only, the flight being inclosed by wing walls, continued along the flanks as a podium to the order, and finished at their extremities as pedestals for statues (No. 17 G). This class is known as pseudo-peripteral, meaning a temple where the encircling colonnade is replaced by three-quarter columns, attached to the walls.

Such temples could be built on a larger scale than those in the Greek style, and with greater ease, as architraves unsupported by walls are few in number. A loss of unity resulted, in comparison with Greek work, in consequence of the abolition of the side colonnades, and the stopping of the steps by the wing walls, for the steps when carried round formed a base to the whole structure.

**The more important Remains of Temples in Rome are:**

### ROMAN TEMPLES,

### Not including Circular or Polygonal.

| | | |
|---|---|---|
| The *Temple of Fortuna Virilis* (Ionic), Pseudo-peripteral, tetrastyle. | B.C. 100 | Now the church of S. Maria Egiziaca. |
| The *Temple of Mars Ultor* (Corinthian). | B.C. 42–2 | Three columns remaining. |
| The *Temple of Concord* (Ionic) . | B.C. 27–A.D. 14 | |
| The *Temple of Jupiter Stator* (Corinthian) | A.D. 6 | Also known as "Castor and Pollux." Three columns remaining. |
| The *Temple of Vespasian* (Corinthian), Hexastyle-prostyle. | A.D. 94 | Three columns remaining. |
| The *Temple of Antoninus and Faustina* (Corinthian), Pseudo-peripteral hexastyle. | A.D. 141 | Now the church of S. Lorenzo. |
| The *Temple of Venus and Rome* (No 38 C). | A.D. 117–138 | Peculiar double Temple. |
| The *Temple of Jupiter Tonans* (Ionic). | A.D. 284 | Also known as the Temple of Saturn. Only eight columns remaining. |

**The more important remains of Temples outside Rome are:**

### At Athens.

The *Temple of Jupiter Olympius* (No. 17 J), commenced in B.C. 170 by Cossutius, architect under King Antiochus, but completed by Hadrian in A.D. 117. It is considered by many a Greek building, and the capitals undoubtedly served as models for the Roman Corinthian order.

It is octastyle in front, with twenty Corinthian columns on each flank 58 feet in height.[1]

It equalled in size the great hypostyle hall at Karnac (No. 4 A), and was the third largest temple in existence.

### In France.

Hexastyle *Temple at Nimes* (No. 17 G, 31), erected during the reign of Hadrian A.D. 117–138.

The *Temple of Diana at Nimes*. The cella is covered with a stone-ribbed vault whose thrust is counteracted by smaller vaults over the side passages.

### In Syria.

At Baalbec and Palmyra are groups of temples of great interest, influenced largely in their plan by previous Assyrian buildings.

The *Temple of the Sun at Baalbec*, A.D. 273, stood in a court 380 feet square with recessed porticoes. In front of this was a hexagonal cortile entered by a decastyle Corinthian portico 260 feet long.

The smaller temple equals the Parthenon in size, and there is also an unique circular temple (No. 38 D, E, F).

## CIRCULAR TEMPLES

were used by the Romans, the shape being probably borrowed from the Etruscans.

Ex. Temple of Vesta at Rome.

" " " " Tivoli (near Rome) (No. 17 C).

Probably both of these were erected during the reign of Augustus, B.C. 27–A.D. 14.

They consist of a circular cella surrounded by a peristyle of Corinthian columns. The cella was probably carried up above

[1] "Temple of Jupiter Olympius," by F. C. Penrose (Transactions R.I.B.A., Vol. IV., p. 8).

ROMAN EXAMPLES I.

# THE PANTHEON AT ROME

BUILT DURING THE REIGN OF HADRIAN PROBABLY AD 123 ON THE SITE OF A THREE CELLED TUSCAN TEMPLE THE PORTICO BEING THAT OF THE OLD TEMPLE RE-ERECTED AS THE PORTICO PIECE OF THE NEW BUILDING

270

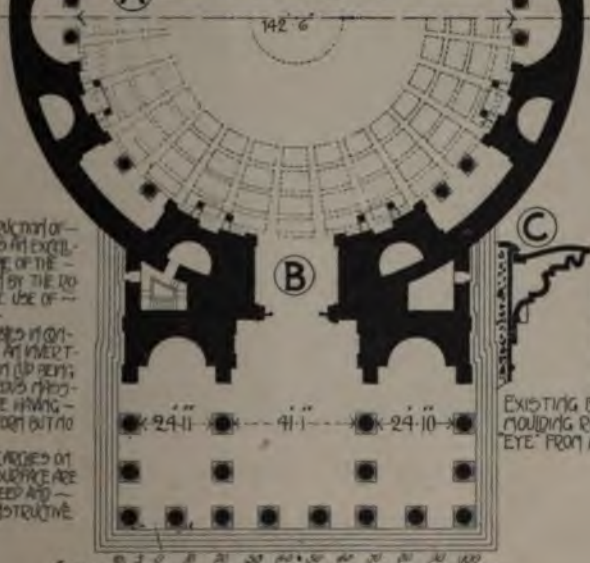
ORIGINALLY COVERED WITH BRONZE TILES, & THE CENTRE OPENING OR EYE WAS FACED WITH A BRONZE MOULDING



A ELEVATION TOWARDS APSE

CENTRE LINE

142'6"



B



C D

EXISTING BRONZE MOULDING ROUND THE "EYE" FROM MIDDLETON.

THE CONSTRUCTION OF THE DOME IS AN EXCELLENT EXAMPLE OF THE SKILL SHOWN BY THE ROMANS IN THE USE OF CONCRETE.

IT RESEMBLES IN CONSTRUCTION AN INVERTED PUDDING BASIN BEING A HEMISPHERICAL MASS OF CONCRETE HAVING THE ARCH FORM BUT NO THRUST.

THE COFFERINGS ON ITS INNER SURFACE ARE ONLY SUNK DEEP AND HAVE NO CONSTRUCTIVE VALUE.

24'11" 41'1" 24'10"

SCALE OF FEET

the roof of the peristyle and separately roofed, but restorations vary as to the crowning features.

The difference in design of the two examples, and the reasons for it, are instructive. The Roman example being placed in a low and flat situation, required all the height that could be given it; hence the columns are of slender proportions. The temple at Tivoli, on the contrary, being placed on the edge of a rocky cliff, and thus provided with a lofty basement, required to be low and sturdy in proportion, lest it should look insecure.

**The Pantheon at Rome** (Nos. 32 and 33), the date of which was formerly doubtful, is known, from recent investigations, to have been built during the reign of Hadrian, probably A.D. 123, on the site of a three-cell temple of Etruscan type, built by Agrippa, during the reign of Augustus, B.C. 27–A.D. 14. The portico is that of the old temple taken down, and re-erected in a raised position as the frontispiece of the new building. This portico consists of sixteen Corinthian columns of Egyptian marble, planned in three bays, in the same manner as the Etruscans formed the entrances to their three-cell temples. The exact date of the circular portion was discovered by the inscription on the bricks, which were opened out during the work of restoration by M. Chedanne, in 1892.

The Pantheon is a circular building, the internal diameter being 142 feet 6 inches, which is also the height of the interior. The walls of brickwork are 20 feet in thickness. Hollowed out of these thick walls are eight great recesses, one of which forms the entrance; three of the remaining seven are semicircular exedræ, the other four are rectangular on plan. The dome is constructed of concrete, the brick arches on its inner surface being only skin deep and having no constructive value. It resembles in construction an inverted porcelain cup, being a homogeneous mass of concrete, having the arch form, but no thrust.

The internal surface of the cupola is coffered (No. 32), and note should be taken of the way in which the mouldings or sinkings of these coffers are regulated, so as to be seen correctly from below by the spectator.

Externally the cupola was originally covered by tiles of bronze, and gilded. The portico also had a bronze ceiling, since removed for the sake of the metal.

The old Roman bronze doors and frame, however, still remain (No. 25 A, B, C).

The structure was probably faced externally with white, and internally with coloured, marbles. The present internal casing has been assumed by Mons. Chedanne to be original.

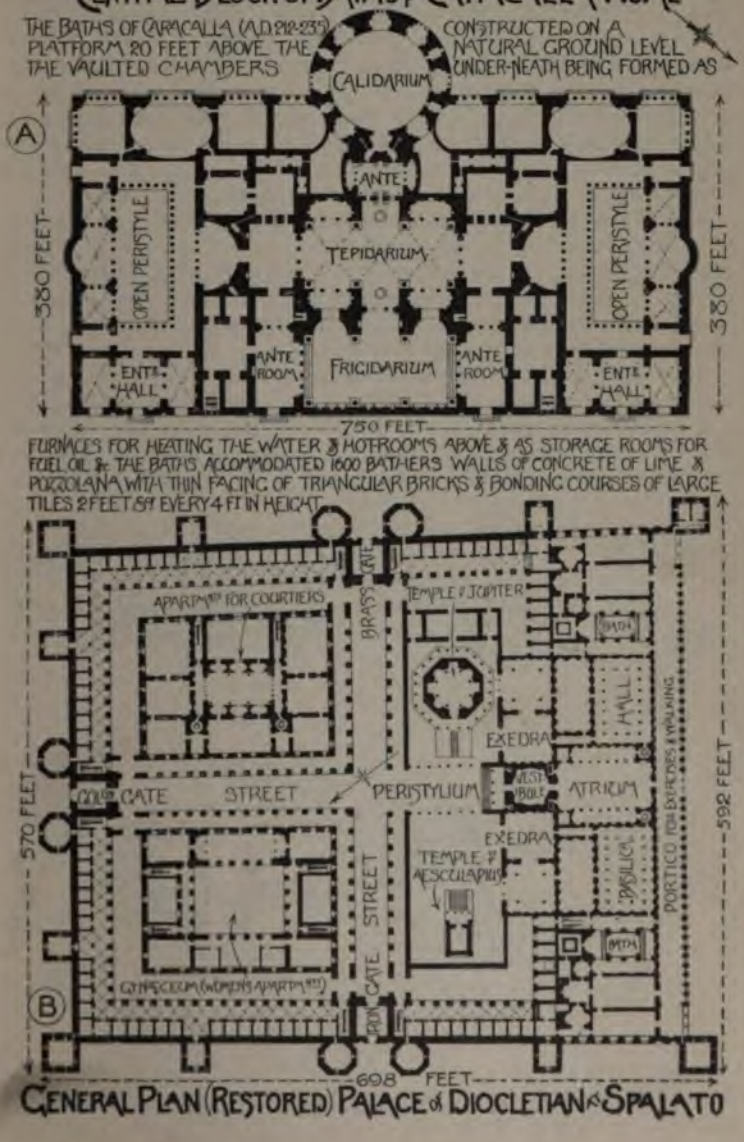


33. THE PANTHEON, ROME.
Showing Method of Lighting.



## ROMAN EXAMPLES II.

### CENTRAL BLOCK OF BATHS OF CARACALLA ROME




GENERAL PLAN (RESTORED) PALACE OF DIOCLETIAN AT SPALATO

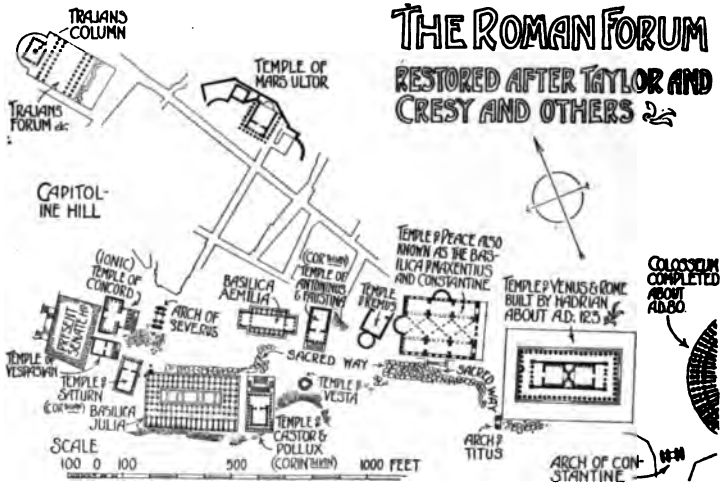
The lighting is effected by one circular unglazed opening (No. 33), 27 feet in diameter, placed in the crown of the dome.

This method of lighting produces an effect which is most impressive and solemn; and there may have been a symbolic purpose in thus imitating the appearance of the vault of the heavens in this temple of all the gods, the idea being that the worship of Jupiter should take place in a building open to the sky. "One great eye opening upon heaven is by far the noblest conception for lighting a building to be found in Europe."

The **Temple of Jupiter at Diocletian's Palace at Spalato** (A.D. 284) is a further development of the last named (No. 34 B). Internally it is circular, 28 feet diameter, decorated with columns placed in its angles, and crowned with a dome constructed in tiers of brick arches. Externally it is octagonal, surrounded by a low peristyle of columns.

The **Circular Temple at Baalbec** (No. 38 D, E, F), A.D. 273, is notable for its curved entablatures.

The Christian baptisteries erected in the following centuries were adapted from such circular temples, which are therefore extremely interesting and instructive.




35.

The *Forum Romanum* is inserted to show the disposition of the principal Roman monuments.

## PUBLIC PLACES.

The **forum** in a Roman city corresponds with the **agora** in the Greek city, and was an open space used as a meeting place and market, usually surrounded by porticoes, colonnades, and public buildings, and adorned with pillars of victory, and statues to great men. The basilica, or hall of justice, was generally entered from the forum.

The **Forum Romanum** (No. 35) and the **Forum of Trajan** were among the most important in Rome, but there were many others.

The forum corresponds to the "place" of the French towns, and to the "market place" of English country towns.

In our metropolis, the Royal Exchange (or probably Trafalgar Square) corresponds to the ancient forum, as a place where the merchants could meet and discuss matters of business, or where political demonstrations could be held.

## THE BASILICAS, OR HALLS OF JUSTICE,

comprise some of the finest buildings erected by the Romans, bearing witness to the national love of law and justice. They are interesting as a link between classic and Christian architecture, as will be explained later on.

The usual plan was a rectangle, whose length was two or three times the width. Two or four rows of columns ran through its entire length, thus creating three or five avenues. Over the aisles were usually placed galleries.

The entrance was at one end, or at the side, the tribunal at the other on a raised daïs, which was generally placed in a semi-circular apse, partly cut off from the main body of the building by columns. In the centre of the apse at the extreme end sat the president, and on his right and left the assessors.

In front of the apse was the altar, where sacrifice was performed before commencing any important business.

The building was generally covered with a wooden roof, and the exterior seems to have been of small pretensions, being sacrificed to the interior.

**Remains:**

**Example of a basilica with wooden roof.**

The Ulpian, or **Trajan's Basilica at Rome** (No. 36 B, E), of which Apollodorus of Damascus was the architect (A.D. 98). It was 180 feet wide, 360 feet long; the central nave being 87 feet wide, the side aisles 23 feet 4 inches. Total internal height 120 feet.

It had a semicircular apse, raised by means of steps, and in front of the apse was the altar of sacrifice. The basilica was entered, from the Forum of Trajan, by a central and two side doorways.

In connection with the basilica was the celebrated Trajan's column (No. 36 B), 97 feet in height, of which there is a full-size cast in the South Kensington Museum. The sculptures—numbering, besides animals, machines, etc., over 2,500 human figures—are carved on a spiral band, 3 feet deep, and 660 feet long, and representing incidents in Trajan's war with the Dacians. It stood in a court with storeys of galleries around, from which the elaborate sculpture could be viewed (No. 38 J, L), "group winding after group with dreamlike ease."

**Example of a vaulted basilica.**

**The Basilica of Maxentius and Constantine** (No. 36 A, C, D), **or Temple of Peace, at Rome.** (A.D. 312.)

It was 195 feet wide, and 260 feet long.

The central nave was 83 feet between the piers, and 120 feet high.

The side aisles are roofed as three great semicircular archways, each 80 feet in span, and the nave was covered by an immense intersecting vault in three compartments.

The division walls to the side aisles are the supports of the central cross vaulting, the three bays communicating by arches through them. Monolith columns, attached to the face of these piers, received the springers of the main vaults. Light was obtained for the nave from above the aisle vaults by means of lunettes, or semicircular windows, formed in the semicircle formed by the main cross vaults.

The building is a prototype in many respects of a Gothic vault, all the thrust and weight of the superstructure being, by means of the intersecting vaulting, collected and brought down to various points, where piers are built to receive them.

**Provincial basilicas.** Ex. at Trèves in Germany, and Silchester in Hampshire, England.

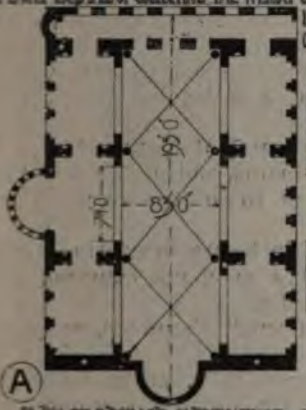
## THE THERMÆ OR BATHS

are quite as characteristic of Roman civilization as the amphitheatres, though probably in origin derived from the Greek "Gymnasia."

**Uses.**—They were used for the purposes of bathing, the process being very similar to the modern Turkish bath. First,

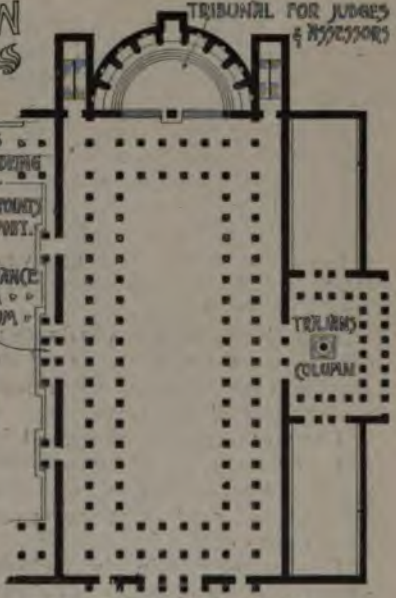
# EXAMPLES OF ROMAN BASILICAS, ROOFED & AND VAULTED.

COLUMNS ATTACHED TO THE FACE OF PIERS SUPPORT THE WEIGHT OF THE MAIN VAULTS. THIS BEING AN EARLY EXAMPLE OF COLLECTING THE WEIGHT ON ISOLATED POINTS OF SUPPORT.




A

PLAN OF BASILICA MAXENTIUS, OR CONSTANTINE, ALSO KNOWN AS THE TEMPLE OF PEACE. A.D. 312.




PLAN OF BASILICA ULPIA OR TRAJAN'S BASILICA. A.D. 98.

B



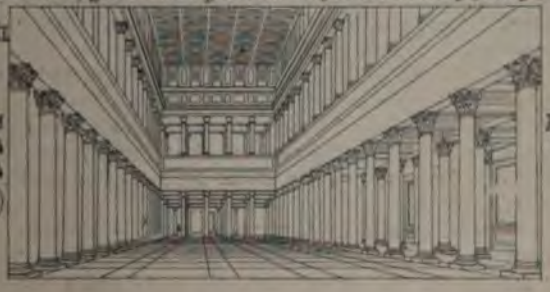
C

BASILICA MAXENTIUS, LONGITUDINAL SECTION.



D

BASILICA MAXENTIUS, TRANSVERSE SECTION.



INTERIOR VIEW OF BASILICA ULPIA AS RESTORED BY CHIPIEZ.

E

a hot-air bath in the Tepidarium; second, a hot-water bath in the Caldarium, next a cold plunge in the Frigidarium, or Piscina, and finally the "rubbing down," or shampooing, in the drying room.

They were also used for lounging, for various athletic exercises, and for the hearing of lectures and discourses; thus supplying the place of the daily paper of to-day for the dissemination of news. They answered, moreover, in a great measure to our modern "club" as a rendezvous of social life. A small charge (equivalent to one farthing) was made to the populace, and in later days they were opened free, as a bribe, by emperors in search of popularity.

**The Baths of Caracalla** (A.D. 211–217) **at Rome** (No. 34 A) are the most important of all the remains, and give a splendid idea of the size and magnificence of these structures. They accommodated 1,600 bathers.

The buildings are contained in an inclosure measuring 1,150 feet each way, or about one-fifth of a mile, not counting the segmental projection on three of the sides.

Along the road front was a row of small chambers, probably used as shops.

The spaces within the inclosure were laid out for wrestling and games, halls being provided, in the segmental projections, for dramatic representations and lectures.

The central building (730 × 380 feet) was used entirely for baths, and had only four openings on the side exposed to cold winds (N.E.). It was, however, supplied with large columned openings on the south front, giving access to the gardens (No. 34 A).

This central block is now in ruins, but restorations have been made, by French architectural students and others, which show the position of the dressing rooms; of the Piscina (or swimming bath); of the Sphæristeria for gymnastics; of the Frigidarium, or cold-water bath; of the Tepidarium, or warm bath; and of the Caldarium, or hot bath, with its Sudatio.

The great central vaulted space, and the Rotunda, or circular hall, are sufficiently preserved to enable one to gain an idea of the immense size of those apartments. As a comparison, we might mention that the Houses of Parliament, including Westminster Hall, cover about the same area as the central block of these baths.

The **architectural character** of these immense structures indicates a further secession from Greek principles, in that the exterior treatment was neglected, all their glory depending on the adornment and colour of the interior.



37. Pont du Gard, Nîmes, France.



The exteriors of these baths may have been treated in stucco, or more wisely left as impressive masses of rough brickwork, perhaps banded or dressed with bricks of a better colour.

Internally, however, where there is no question but that sumptuous magnificence was aimed at, the pavings were patterned in mosaic cubes of strong colours; the lower parts of the walls were cased with marble, the upper parts with enriched and modelled stucco, bright with colour; the great columns, on which rested the vault springers, were of the finest porphyry or rare marbles; while the surface of the vaults was sunk with rich cofferings, or covered with bold figures, or decorations, in black and white, or in coloured mosaic. In the halls thus decorated was placed the finest sculpture of antiquity, brought from Greece, or executed in Rome by Greek artists.

The Vatican and Roman museums contain the results of the first and fruitful excavations in these thermæ, during the Renaissance period.

In **plan** (No. 34 A) alone, the baths are worthy of study, for while providing for the practical requirements of the bathers, care is taken to lead on from room to saloon and on to the great hall, which is the largest and most lofty apartment. Moreover, by a system of exedræ or recesses, and by screens of columns, and by the relation of parts, any loss of scale was provided against, and the grandeur of the whole impressed upon the spectator. In Viollet-le-Duc's lectures there is a drawing of the Frigidarium restored, which gives one a good idea of the effect produced. In the construction of the vaults the system was that described on page 90 for the Basilica of Constantine (No. 30); while the Caldarium, or hot room, followed that given on page 86 for the Pantheon, so that the latter has been sometimes mistaken for part of Agrippa's Baths.

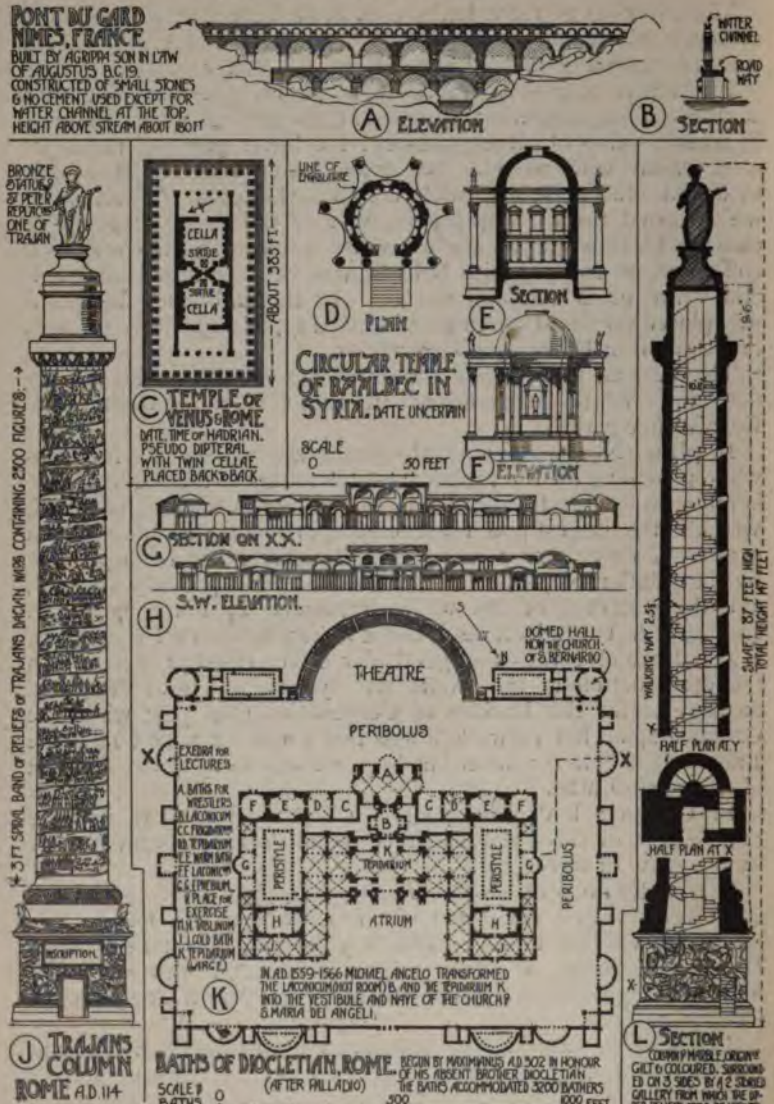
St. George's Hall, Liverpool, is a reproduction, both in scale and design, of the great hall of Caracalla's Bath, but with five bays instead of three.

**Other Examples.** — The *Baths of Agrippa* (B.C. 27) behind the Pantheon and the *Baths of Titus*, built on the foundations of Nero's Golden House. The Tepidarium, or Great Hall, of *Diocletian's Baths* at Rome (A.D. 302–305), converted by Michael Angelo into the Church of Santa Maria degli Angeli (No. 38 G, H, K).

The small private bath or balneum was also much used, as at Pompeii, where a painting now existing exhibits their manner of use; they were heated by flues under the floors, in the walls, and lining the vaults, through which passed air, heated in the basement by the hypocaust or furnace (No. 30 F, G, H).

Roman Empire
27 B.C. - 300 A.D.

# ROMAN EXAMPLES IV.





39. Amphitheatre, Verona.

Interior view.



## THEATRES AND AMPHITHEATRES.

The design of the **theatres** was taken from the Greeks, but altered to suit Roman requirements as mentioned below.

The plan (No. 24 B) consisted of a semicircular auditorium—thus differing from the Greek theatre, which was rather more than semicircular—of tiers of seats one above the other, with wide passages and staircases communicating with the external porticoes on each storey. On the ground, separating the auditorium from the stage, was a semicircular area in which the Greeks placed the orchestra, while in Roman times this portion was occupied by the Senators.

**Remains.**—At **Orange,** South France, are the remains of an important theatre, in which the auditorium is constructed and not hollowed out of the side of a hill; the auditorium being 340 feet in diameter. The stage is rectangular, being inclosed by shallow return walls, at right angles to the great scene or back wall (No. 24 B). A ceiling, probably of wood, bounded by these walls, sloped outwards to the auditorium, and must have aided the voices of the actors. The great wall at the back of the stage, 340 feet long by 116 feet high, remains. The **Theatre of Marcellus, Rome** (B.C. 23–13) still exists in part only. The **Odeion of Herodes Atticus at Athens** (A.D. 143) is also a fine example. It would seat 6,000 people, and was covered by a wooden roof, of which all traces have disappeared (No. 15).

**The amphitheatres** are truly Roman buildings, remains being found in every important settlement. They are good exponents of the character and life of the Romans, who had greater love for mortal combats between men and beasts, between men and men, or between beasts alone, than for the tame mimicry of the stage. Such combats were considered to be a good training for a nation of warriors.

These buildings were also used for naval exhibitions, as the drains for introducing the water for flooding the arena still exist.

*Note.*—The Spanish bull ring to some degree gives us an idea of the arrangement and uses of a Roman amphitheatre.

The most important example is the **Flavian Amphitheatre** at Rome, also called the Colosseum (Nos. 40 and 41), erected by Vespasian in A.D. 70.

By an examination of the model at the Crystal Palace, a better idea can be obtained of the general distribution of its parts than from any written description.

In plan it is a type of all the examples, consisting of a vast ellipse 620 feet × 513 feet. The height of the original façade (the three lower storeys of arcades) is 120 feet; including the

later addition of the blank upper storey, it is 157 feet. The arena proper is 287 feet × 180 feet. The seats, in solid stone, rise up on all sides from the oval arena; underneath them are corridors and staircases. The dens for the wild beasts are immediately under the lowest tiers of seats, and consequently opened on to the arena as at Verona (No. 39).

The construction is strong and solid, and of an engineering character. The supports have been calculated at one-sixth of the whole area of the building. The system is one of concrete vaults resting on concrete walls, 2 feet 3 inches thick, faced with travertine stone 4 feet thick, and having an internal lining of 9 inches of brickwork, making 7 feet in total thickness. The details of the exterior orders are roughly executed; many of the plinth moulds, etc., are only roughly worked to a 45 degrees splay.

The radiating walls are cleverly constructed, concrete being used where least weight, tufa stone where more weight, and travertine stone where the most heavy pressures have to be supported (No. 40 B).

The constructional idea consists of wedge-shaped piers radiating inwards, the vaults running downwards to the centre from the high inclosing walls; consequently no building is more durable or more impossible to destroy—a feeling well expressed by the proverb:

"When falls the Colosseum, Rome shall fall."

If it has not come down to us in a perfect condition, it is because it was used as a stone quarry for Rome for centuries, many of the later buildings being erected with stones taken from this building alone.

In criticising the general architectural character of this wonderful building (No. 41), we may especially note: first, the multiplicity of its parts, three tiers of apparently countless arcades encircling the exterior, divided and united by three tiers of orders. Second, the grand sweeping lines of the unbroken entablatures running entirely round the building. Third, that the classic orders of architecture are purely decorative, and are piled one over the other, in strong contrast to the Grecian method of single orders. Fourthly, the weight of the structure is supported by the wall behind, the oval being divided into eighty arches encircling the building.

There are other remains of amphitheatres, especially one in splendid preservation at **Verona**, in North Italy (No. 39), at **Capua**, at **Nimes** and **Arles** in France, and **Pola** in Istria, and also remains of a roughly-made example at Dorchester in Dorset.

# ROMAN EXAMPLES V.

## THE COLOSSEUM OR FLAVIAN AMPHITHEATRE, ROME.



(A) PORTION OF ELEVATION.



(B) SECTION THROUGH OPENING A.

BUILT BY VESPASIAN & TITUS AND COMPLETED 80 A.D. THE CONSTRUCTION IS NOTABLE FOR THE SKILFUL USE OF VARIOUS MATERIALS SO AS TO OBTAIN THE GREATEST BENEFIT FROM THEIR SPECIAL QUALITIES. THE MATERIALS USED ARE (A) CONCRETE OF 3 VARIETIES VIZ, i COMPOSED OF LAVA FOR FOUNDATIONS WHERE GREATEST STRENGTH REQUIRED, ii TUFA & BRICK-BATS FOR WALLS WHERE LESS STRENGTH REQUIRED & iii COMPOSED OF PUMICE-STONE FOR VAULTS WHERE LIGHTNESS REQUIRED, (B) BRICK FACING, (C) BLOCKS OF TUFA & TRAVERTINE, (D) MARBLE FOR COLUMNS, CORNICES, SEATS, & ORNAMENTAL PURPOSES. EXTERNAL FACADE COMPOSED OF BLOCKS OF TRAVERTINE SET WITHOUT MORTAR & CLAMPED TO EACH OTHER.



## TRIUMPHAL ARCHES AND PILLARS OF VICTORY.

The former were erected to generals and emperors, in honour of their victories, or of the completion of some great public work, and were often placed at the entrance to cities.

In general arrangement they consisted of a lofty semicircular central arch resting on an impost, with columns, either Corinthian or composite, on either side (No. 43). Besides architectural decorations they were also adorned with statuary.

An attic (or surmounting mass of stonework) was placed above, inscribed with the warlike deeds of the general to whom the monument was erected.

Ex. of single arch.—The **Arch of Titus at Rome** (A.D. 81), commemorating the capture of Jerusalem, the spoils of the Temple being shown on the bas-reliefs.

The larger examples, *e.g.*, the **Arch of Septimius Severus** (A.D. 203) (Nos. 42, C, D, E, F and 43), and that of Constantine (A.D. 330), have smaller arches on either side of the central one.

*Note.*—The Marble Arch in London will give a general idea of the arrangement in three arches; while that at Hyde Park Corner has but one.

**Rostral columns** were erected to celebrate naval victories, in which rostra, or prows of ships, are used in the ornamentation. In the time of the emperors they were numerous; a recital of the deeds which led to their erection was carved upon them.

**Pillars of victory**, or memorial columns, were usually placed in open courts, or in the Forum, and were surrounded by porticoes, whence the spectator could obtain views at various levels, and was thus able to read the inscriptions, and sculptured figures, with which some were decorated. Trajan's column (page 90) has already been referred to (No. 38, J, L).

> "The sculptures wind aloft
> And lead, through various toils, up the rough steep
> The hero to the skies."

Another example is that to Marcus Aurelius. Both have internal staircases.

## THE TOMBS,

in contrast with those of Greece, were numerous, and bear considerable similarity to Etruscan examples, whose influence should be noted.

(*a.*) **Caves** hewn in the rock, or subterranean vaults, called Columbaria, were built and adorned with paintings and mosaics; internally were divisions or cells 3 feet by 3 feet, containing the



41. The Colosseum (or Flavian Amphitheatre), Rome.



sepulchral urn, in which the ashes of the deceased who had been cremated were placed, and upon which his name was carved.

(*b.*) **Monumental tombs.**—These consisted of tower-shaped blocks, square or round, resting on a quadrangular substructure.

The *Tomb of Cecilia Metella* (B.C. 60), at Rome, has a basement, 100 feet square, on which rests a circular tower 94 feet in diameter, crowned probably with a conical roof.

One of the next important of these monumental tombs is the *Tomb of Hadrian* (A.D. 138), now called the Castle of St. Angelo, on the banks of the Tiber at Rome.

It consists of a square basement, 340 feet each way, and 75 feet high, on which rests a circular tower 235 feet in diameter, and 140 feet in height. The sepulchral apartment is in the centre of the solid mass, and approached by a circular inclined plane, starting at the centre of the river front.

Some of these tombs must have appeared as artificial hills, being ascended by inclined roads, and planted with trees.

The **Temple of Minerva Medica at Rome**, whose origin and date are unknown, is placed here, although Mr. Fergusson is inclined to think it was erected in later times. Some consider it to have been the *Sudatorium* of the Baths of Gallienus. It was probably a Christian building, erected in the third century A.D. It has semicircular niches to nine of the sides, the tenth being the entrance; above are ten windows at the base of the dome to light the interior. The dome is polygonal on the exterior and interior, of concrete, ribbed with tiles, and bears a remarkable similarity to that of San Vitale at Ravenna (No. 30 M).

*N.B.*—The rudiments of the pendentive system are to be seen in the manner in which the dome is set on to the polygonal base; a system afterwards carried to great perfection by the Byzantines. The buttresses are placed at points where they are required, therefore thinner walls were used; this is an important step to Gothic principles. Compare in this respect the Pantheon.

(*c.*) The Egyptian **pyramidal form** was also used as in the Pyramid of Cestius at Rome (B.C. first century).

(*d.*) **Smaller tombs** of various forms are generally erected at entrances to cities. Many are sarcophagus-shaped, resting on high basements; others resemble small temples.

Example.—The Street of Tombs at Pompeii.

"Those ancient roads
With tombs high verged, the solemn paths of Fame;
Deserve they not regard! o'er whose broad flints
Such crowds have roll'd; so many storms of war,
So many pomps, so many wondering realms."—DYER.

*Eastern Tombs:* In addition to these, the districts of Petra, Jerusalem, Cyrene (North Africa), Caria (Asia Minor), and Algeria possess remains, some rock-cut and some structural.

## THE AQUEDUCTS AND BRIDGES

were really of a more engineering than architectural character, being in the main utilitarian.

## AQUEDUCTS.

Rome had to be supplied with water from a distance, because of the badness and scarcity of the water on the spot, the Tiber being unfit for drinking purposes. The Romans were apparently unacquainted with the fact that water will rise to its own level in pipes, and therefore believed it necessary to convey it in huge aqueducts at enormous cost of labour.

In any views of the Campagna round Rome, the ruined aqueducts are striking features. On approaching the Eternal City in the days of its glory, from all directions these enormous arched waterways must have seemed to the stranger to be converging to the centre. A view, from Windsor Castle ramparts, of the S.W.R. arched train-way winding across the valley of the Thames will give a faint idea of one only of such structures.

The principle of all the examples is similar. A level channel, lined with cement, is carried on arches, often in several tiers, and sometimes of immense height (say 100 feet) from the high ground, across valleys, to the city reservoir. In some cases channels are placed one above the other. For example, the **Aqua Claudia**, 45 miles long, and the "**Anio novus**," 62 miles long (date A.D. 48), entered the city on the same arches.

Perhaps the finest aqueduct now remaining is, however, the **Pont du Gard** (No. 37), near Nîmes in France. It has three tiers of arches of rough masonry, crossing a valley at about 180 feet above the stream (No. 38 A, B). The arches are rather lower in proportion than usual, the top tier being much smaller than the two below. It is strikingly impressive by the very simplicity of its bold design.

**Bridges** were firstly built of wood, but on the introduction of the arch, stone was employed in their erection.

The characteristics of Roman bridges are that they are solid, sturdy, and built to last for ever. Many still remain, principally in the Roman provinces. A general feature is that the roadway was kept level throughout.

There are two types of Roman bridges in Spain, which are equally impressive. The many-arched type is well exemplified in the extreme length of the Bridge at Cordova. At Toledo may be seen the romantic sweep of the single arches that span the rocky valley of the Tagus.

### Other Works of Utility.

In addition to the architectural works, a word should be added on the civilizing power of the Roman roads. In England the four great roads made by the Romans were:

(*a.*) *Watling Street*, London to Wroxeter, near Shrewsbury.

(*b.*) *Ermine Street*, London to Lincoln *viâ* Colchester and Cambridge.

(*c.*) *Foss Way*, Cornwall to Lincoln.

(*d.*) *Icknield Street*, Bury St. Edmunds to Salisbury and Southampton.

## THE PALACES.

The ruins only of the Roman palaces remain, but there is enough to show their enormous extent and imposing character.

**Examples.—The Palace of the Cæsars on the Palatine Hill, Rome,** excavated largely by the Emperor Napoleon. The plan shows the reception and state apartments only. The chief rooms are the Tablinum, or throne room; the Basilica, or hall for administering justice; the Peristylium, a square garden surrounded by a colonnade; the Triclinium, or dining-hall, commanding a view of gardens beyond. These we may expect in each example, and in addition many minor chambers of service, etc., whose uses cannot now be ascertained.

The Palatine remains are in fact a group of palaces, added to or reconstructed, by successive emperors, commencing with the early House of Augustus (A.D. 3) and added to by Tiberius, Caligula, Nero and Domitian; the whole being remodelled by Septimius Severus. The student of architecture visiting the site will most likely be impressed chiefly with the giant remains attributed to Severus. Nero's golden house, preceded by an experimental palace, the "Transitorium," would seem to have exceeded the bounds of possibility, judging solely by the descriptions which alone have come down to us.

**The Palace of Diocletian at Spalato in Dalmatia** (A.D. 300) is another famous example (No. 34, B).

**The plan** consists of a parallelogram 592 feet × 698 feet, placed in an area of 9½ English acres; the palace itself thus practically equalling in extent the Escurial in Spain.

**It may be described** as a royal country house, or better,

perhaps, as a château by the sea. It has a colonnade from end to end of the sea front, resting on a basement washed by the waves; terminated by towers, which, placed also along the landward façades, gave it the character of a Roman camp, whose plan indeed it follows. On each of these façades, between the towers, were rich gateways, the golden, iron, and brazen, ending the porticoed streets, which divided the inclosed area into four parts, each assigned to a particular purpose. The two northern portions were probably for the guests and principal officers of the household; while the whole of the southern portion was devoted to the palace, including two temples, that of Jupiter and Æsculapius (No. 34, B) (see under circular temples, page 84). A circular vestibule formed an entrance to a suite of nine apartments overlooking the sea; here were placed the private apartments and baths of the emperor.

Lining the inclosing walls of the whole area, on three sides, internally, were the cells that lodged the slaves and soldiers of the imperial retinue. The temple, and the more lofty halls of the palace proper, must have been visible above the inclosing walls in distant views by land and sea.

In architectural character it is notable for the debased style, in which broken and curved pediments with rococo detail occur. Its value, however, as a transitional example must not be overlooked, for we find the arches set directly upon the capitals without the intervention of any entablature, thus indicating the commencement of the Gothic style.

## THE DWELLINGS OF THE ROMANS.

These may be classified under—(*a.*) The *domus*, or private house; (*b.*) The *villa*, or country house; and (*c.*) The *insula*, or many-storeyed tenement.

The dwellings of the Greeks have already been touched upon (see page 61), and there seems every reason to believe that Roman dwellings were evolved from them and consisted of an atrium, which was the more public portion of the building, and a peristyle beyond, used more particularly by the family; both of these courts were open to the sky in the centre and had rooms grouped around them. At Rome, the Atrium Vestæ, or House of the Vestal Virgins, and the House of Livia are interesting examples.

The excavations at **Pompeii** and **Herculaneum** have thrown considerable light on this important subject. It has been supposed that these remains differ little from the later Greek dwellings, as Pompeii on the Bay of Naples was a Greco-Roman city. It was overwhelmed by an eruption of Vesuvius in A.D. 79, and buried by ashes, 10 feet above the top of the houses.

Lytton's great novel, "The Last Days of Pompeii," will be found of interest to the student as a description of the habits and life of the Romans.

The streets of Pompeii were narrow, *i.e.*, 8, 12, or 15 feet wide. The widest is 23 feet 6 inches, the roadway being 13 feet 6 inches, with two paths 5 feet each. The houses had plain fronts to the street, the frontage on either side of the passage entrance being let off as shops.

The rooms are lighted from an internal courtyard called an "atrium," as are Eastern houses to this day, and as in former days were the inns of France and England.

The Pompeian houses are mostly of one storey in height, but stairs and traces of upper floors exist. For such upper storeys probably wood was used, but as a decree was passed in the time of Augustus limiting the height of houses in Rome to 75 feet, brick or masonry buildings must have been carried to a great height. The openings were small, because the light is strong in the sunny climate of Italy.

In the **House of Pansa** (No. 42, A, B), which may be taken as a good type of *domus* or ordinary private house, a vestibule leads direct from the street entrance to the atrium, which serves as the public waiting-room for retainers and clients; from which the more private parts of the house were shut off. The atrium was open to the sky in the centre, with a "lean-to" or sloping roof round all four sides supported by brackets.

The impluvium, or "water cistern," for taking the water from these roofs, was sunk in the centre of the pavement, while round the atrium were grouped the front rooms, lit through the doors, and probably used by servants or guests, or as semi-public rooms, *e.g.*, libraries, etc.

An open saloon, or tablinum, with narrow passages, called "fauces," on either side, led to an inner court, or peristyle, often the garden of the house.

On the left of the peristyle are smaller rooms called "cubicula," or bedrooms, and the position of the triclinium, or dining-room, should be noted, with three couches, each made for three people to recline upon, nine being the recognized number for a Roman dinner party, "not less than the Graces nor more than the Muses." Two such rooms were often required with differing aspects for winter and summer use.

The kitchen and pantry are in the side of the peristyle, furthest from the entrance.

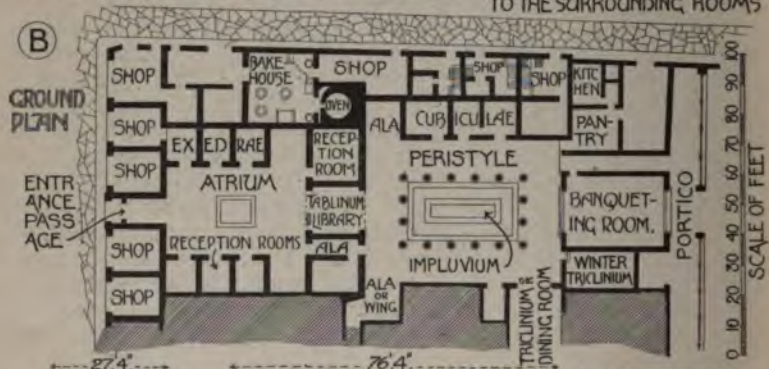
The peristyle is the centre of the private part of the house, and corresponded to the hall of Elizabethan times. Often a small shrine is placed in this part.

## ROMAN EXAMPLES VI.

# HOUSE OF PANSA, AT POMPEII



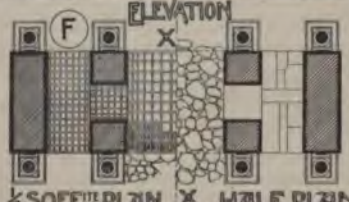

IN ROMAN DWELLING HOUSES THE ATRIUM WAS THE PUBLIC PART & THE BUILDING IN WHICH THE CLIENTS WERE ACCUSTOMED TO AWAIT THEIR PATRON, THUS RESEMBLING A MODERN HALL. THE PERISTYLE FORMED THE CENTRE & THE RESIDENTIAL PORTION. THE ATRIUM & PERISTYLE WERE OPEN TO THE AIR GIVING LIGHT & AIR TO THE SURROUNDING ROOMS







SECTION X.X.




END ELEVATION

## ARCH OF SEPTIMIUS SEVERUS ROME 204 A.D.

½ SECTION X HALF PLAN

THIS TRIUMPHAL ARCH WAS DEDICATED BY THE ROMANS IN HONOR OF THE EMPEROR SEPTIMIUS SEVERUS FOR HIS VICTORIES IN THE EAST IN CONJUNCTION WITH HIS 2 SONS CARACALLA & GETA



43. Arch of Septimius Severus, Rome.



The Pompeian House at the Crystal Palace, designed by the late Sir Digby Wyatt, is an exceedingly good reproduction of an ordinary Pompeian house. Notice especially the painted decorations, which are copies of original paintings at Pompeii. The darkest colours are placed nearest the ground, though sometimes the whole room was black, with centres of painted subjects in strong colours. The walls, at other times, are richly and fantastically painted with slender shafts, as of metal, with entablature, etc., in perspective; or else adorned with figure subjects of a gay character. The floors of these houses are of mosaic in black or white, or of rich and varied colouring.

Another type of dwelling was the *villa* or country house, of which the most elaborate was probably that of Hadrian, at Tivoli.

The *insula*, or tenement of many storeys, seems to have resembled the modern flat.

## 4. COMPARATIVE.

| GREEK. | ROMAN. |
|---|---|
| A. **Plans.**—Their designs had refinement and beauty, proportion being of the first importance, and there was a dignity and grandeur of effect irrespective of the smallness of scale. | A. **Plans.**—Designs bear a vast and magnificent impression, characteristic of a powerful and energetic race. The Romans were eminently great constructors, and knew how to handle the materials to hand. This constructive skill was acquired by the building of utilitarian works, such as aqueducts, bridges, etc., on a large scale; hence buildings have size and impress of power, which are their chief characteristics. |
| Unity was attained in the self-contained temples, while variety of grouping and some picturesqueness was attempted in the Propylæa and Erechtheion (No. 17). | The arch, vault, and dome are the keynote to the whole system of Roman, and constitute a step toward Gothic architecture. By the use of the arch, wide openings are rendered possible, and by vaults and domes large areas and complicated and varied plans could be roofed. Nos. 34. 36 and 38). |
| Purity and severity of outline caused by the simple method of post and beam, which did not lend itself to such variety and boldness of planning as resulted from the arcuated Roman style. | Boldness and variety is introduced by the use of the vault, or continuous arch, leading to the system of intersecting vaults, by which the concentration of weights on piers is effected. The |
| No mixture of constructive principles is seen in the buildings of the Greeks, and the limits of their style have not been yet successfully expanded. | |
| The use of the true arch is avoided, the only example of a vaulted building being the Treasury of Atreus, at Mycenæ. In this the beds of the stones are horizontal throughout, each bed overlapping the one below till the crown was reached. | |

GREEK.

The various types of walling used in the Pelasgic period of Greek art are mentioned on page 47.

B. **Walls** constructed of large blocks of marble, without any mortar, allowing of refinement of treatment, and perfection of finish in construction. One-sixteenth of an inch was rubbed off the buildings on completion, this polishing being performed by slave labour. Jointing was not reckoned as a means of effect. Stability was achieved solely by the judicious observance of the laws of gravity, for mortar was unused, the adherence of the blocks of marble not being necessary, for the weights in these structures only acted vertically, and needed but vertical resistance. In fact, the employment of hewn stone or marble directly shaped the development of the style.

Even for transmitting the pressure between the blocks mortar was not used, because it was regarded as useless in producing such a result. Metal cramps were used to bind the blocks together.

C. **Openings** are of minor importance, the columnar treatment giving the necessary light and shade. Doorways are square-headed, and often crowned with a cornice supported by consoles, as in the fine example of the north doorway at the Erechtheion at Athens.
(No. 25 D—H).

Windows, except on rare occasions, as shown on plate No. 21, appear not to have been used in Temples, illumination being obtained from doorways or hypaethral openings.

ROMAN.

use of recesses rectangular and semicircular on plan is a special Roman feature.

B. **Walls** often constructed of small, mean, and coarse materials, such as brick, rubble, and concrete, with brick or marble facing, bond courses for strength being introduced. Such walls executed in rough materials as mentioned, are thus often coarse in character. Notice also haste in execution; in the Colosseum, plinths will be noticed axed off at 45 degrees. In the haste to complete for occupation, doubtless many buildings were never perfectly finished. By their extended use of concrete, it may be said that they inaugurated the employment, in large masses, of irregular materials, reduced into fragments and bound together by mortar. The materials which they made use of were not special to any country, but consisted of fragments of stone or hard rock and quarry débris, all of which sufficed for the most important projects.

The Greek *Anta* was developed into the Roman *pilaster* (No. 44 F).

C. **Openings** form an important feature in the building, and are square-headed or circular, principally the latter (No. 40 A). The semicircle divided vertically by two mullion piers is a favourite type of window. Wall arches were sometimes supported at the springing line by "centering," afterwards filled up with brickwork, thus producing the segmental arch, common in the third and fourth centuries A.D. (No. 30 E), from the Basilica of Constantine.

GREEK.

D. **Roofs.**—Extreme care was bestowed upon the elaborately constructed, and highly-finished, roofs of the temples. Large slabs of marble were joined by cover pieces, which at the eaves were finished with beautifully designed and carved antefixæ (No. 16).

Ceilings were coffered in stone, with effectively carved members in the angles of the square recesses. Probably coffered ceilings in framed timber roofed over the large spans of the cellæ.

The acroteria or blocks of stone resting on the vertex and lower extremities of the pediment, and supporting statuary or ornaments were characteristic features (No. 16 A).

In Greek work the ceilings were often arranged in panels, square or rectangular in form.

E. **Columns.**—The orders are a *structural* necessity wherever used. The column and beam are the keynote of Greek architecture, the fluting being carried out when the columns were in position.

Orders never superimposed except in interiors of Temples (No. 21 B).

The **Tuscan Order** was not employed by the Greeks.

The **Doric Order** (No. 23 A) was largely used by the Greeks, their most important buildings

ROMAN.

D. **Roofs.** — Bronze was employed in some notable buildings, as in the Pantheon and some other temples. As the Etruscans roofed like the Greeks, but with terra-cotta, the Romans may have continued the practice. Flat terrace roofs were certainly used (see Vitruvius, and the remains at Pompeii). It is thought that built-up trusses of T iron and concrete forming such terraces, covered some of the large halls of the baths.

For ceilings, the noble vaults described before constituted the greatest Roman development. These were in many cases richly coffered, as at the Pantheon. From Horace we learn that splendid coffered wooden ceilings were used in the houses of the rich.

In Roman work the ceilings were often of various geometric forms in combination, such as octagons and squares. They were usually in stucco.

E. **Columns.**—The orders are used in connection with the arch, and gradually lose their structural intention, being used in a *decorative* manner, as in the Colosseum at Rome.

Orders are often superimposed, as at the Colosseum (No. 40 A).

The Romans introduced pedestals on which they placed the column to secure greater height.

The **Tuscan Order** is a variation from the Doric ; the column has, however, no fluting, and there are no triglyphs in the frieze.

St. Paul's Church, Covent Garden, is a good modern example by Inigo Jones.

The **Doric Order** (No. 23 B), was little used by the Romans, not being suited to their ideas

GREEK.

being erected in this order. It was used without a base, the capital having a plain square abacus, beneath which is the echinus (No. 27 D), whose outline varies in different examples. The proportions of the columns proceed from extreme sturdiness in the early examples to great refinement in the late ones, and the shaft is always fluted. The architrave overhangs the face of the column (Nos. 16 and 23 A). In the frieze, the triglyphs are over the central axis of the columns, bounding the façade, where the columns are brought closer together, and the triglyph is placed at the angle of the frieze (No. 16 A).

The channels in the triglyph are rounded off at the top.

The **Ionic Order** (No. 23 C) was used with great refinement by the Greeks. The distinctive capital has the scrolls showing on two sides only, although an example of the method adopted by the Romans is found in a special case at Bassæ.

The **Corinthian Order** (No. 23 E) was little used by the Greeks; the examples remaining are thought by some to indicate the decline of Greek art, in that sculpture, as such, now gave way to mere carving.

The Acanthus leaves surrounding the "bell" were of the prickly acanthus type, having pointed leaves. In Greece, the order was not introduced till the later age, and then appears to have been used in small buildings only, such as the choragic monument of Lysicrates (No. 22), and the octagonal Tower of the Winds at Athens, or internally in buildings of greater size. The Temple of Jupiter Olympius at Athens

ROMAN.

of splendour and magnificence. The Romans added a base, varied the capital by adding extra mouldings to the abacus, altered the outline of the echinus, and modified the cornice by reducing its importance and adding a dentil course. The flutes were sometimes omitted in the shafts of the columns, and the proportions are less sturdy. The architrave does not overhang the face of the column, but is in a line vertical with it (No. 23 B). In the frieze the triglyph comes over the central axis of the column even at the angle.

The channels in the triglyph have square angles at the top.

A canon of proportions, reduced to rules by Vitruvius, was gradually evolved for all the orders.

The **Ionic Order** (No. 23 D) has its cornice further enriched. The capital is made uniform all round by the volutes being placed angleways, thus showing the face of the scrolls on each side.

The **Corinthian Order** (No. 23 F) was the favourite of the Romans; it was used in the largest temples, as those of Jupiter Stator (No. 44 A), and Jupiter Tonans at Rome. The capital is rich, though often coarse, the acanthus leaves often bordering on naturalism. The acanthus leaf was that known as the olive acanthus, in which the leaves are blunt ended.

The entablature is over-ornamented, especially the architrave, or lower member. An explanation for this has been found in the supposition that the Romans carved in ornamental patterns what the Greeks had only painted.

The cornice has carved con-

GREEK.

may be considered a Roman building, or rather as a Greek design mainly carried out by Romans. (See page 84.)

Shafts of columns were fluted.

The **Composite Order** was never used by the Greeks.

F. **Mouldings.** — The Greeks relied for effect on the graceful contour of their mouldings, which approach conic sections in profile. The mouldings, though often covered with delicately carved enrichments, never lose the idea of grace of outline which the decoration seems but to enhance. Being executed in a fine-grained marble, it is often so much undercut as to produce a lace-like effect. (See Nos. 26 and 27.

G. **Ornament** (No. 28).—In sculpture the Greeks have never been surpassed, whether in isolated groups or in works within the boundaries of an architectural framing, as at the Parthenon. In painting we know of Polygnotus and other great artists being employed upon the temples and other buildings. Part of the Propylæa was known as the Painted Loggia. The early frescoes were probably in the style of the vase painters of that period, while the later, if we may judge from the provincial imitations of Pompeii, must have been grand in style and decorative in effect.

It is generally admitted that

ROMAN.

soles, modillions or brackets, which also tend to enrich it, and which do not appear in the few Greek examples which are left to us.

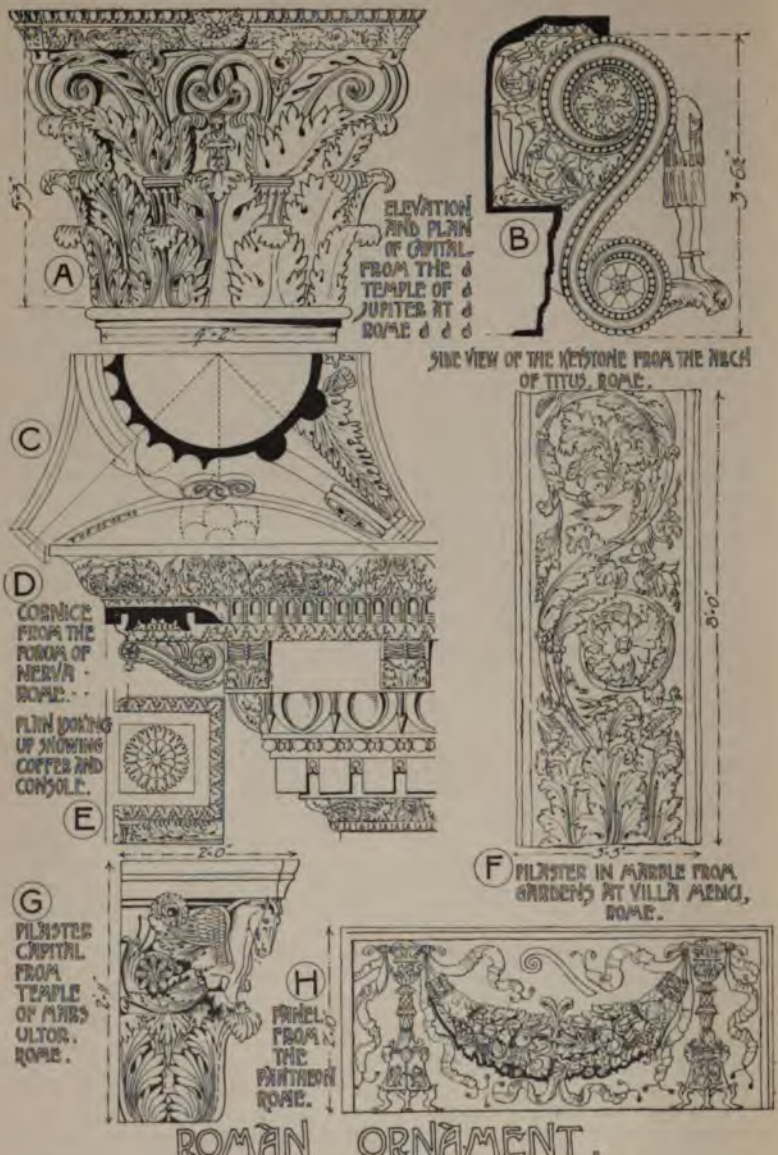
Shafts were fluted or plain.

The **Composite Order** was invented by the Romans by placing the upper portion of the Ionic capital upon the lower part of the Corinthian. In other details the order follows the Corinthian, but with additional ornamentation.

F. **Mouldings.**—The Romans relied on the rich carving cut upon their mouldings; ostentation replaces refinement. In the latest examples, every member being carved, a certain rich picturesqueness of fretted surfaces is produced in cornices and dressings.

Roman mouldings are nearly always parts of a circle in section, while the execution is often very careless. (See Nos. 26 and 27.)

G. **Ornament** (No. 44).—The Romans did not excel either in sculpture or painting. Greek artists were employed, and Greek examples were prized and copied. In later times both vaults and floors worthy of note were produced in mosaic, but many examples show great vulgarity of sentiment. In the case of marble, for wall facings and floors, it is probable that rich and good effects were produced, as the Romans were connoisseurs in marbles, which they sought out and imported from all countries. The origin of the ox-heads connected with garlands, so frequently carved on Roman friezes, is supposed to be the actual skulls




# ROMAN ORNAMENT.

GREEK.

the exteriors of the Temples were treated with colour, which must have aided in the general effect.

The ornamental sculpture used in the tympana of the pediments, the metopes and the friezes, the sculptured caryatides and the carefully prepared cement used as a covering to stone or brick, have already been referred to in the analysis of Greek architecture (page 71).

The *Anthemion* (No. 28 A, F), honeysuckle, was the characteristic *motif* of much Greek surface ornament, both on the *cyma-recta* mouldings and on flat spaces.

ROMAN.

and garlands which were hung for decoration on altars at which the beasts to which they belonged had been slain.

A finely worked marble cement was largely used as a covering to walls and stone columns, and formed a ground on which paintings could be safely executed, as at Pompeii.

The *Acanthus* scroll with continuous stem and spirals adorned with rosettes or grotesques, is specially characteristic.

The arabesques which adorned the walls of the Baths of Titus influenced largely the fresco decoration of the Renaissance period.

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# EARLY CHRISTIAN ARCHITECTURE.

"A fuller light illumined all,
A breeze through all the garden swept."—TENNYSON.

## I. INFLUENCES.

**i. Geographical.**—See under Rome. The position of Rome as the centre of a world-wide empire should be remembered. "All roads lead to Rome," and Christianity, to become universal, had to grow up at the capital, however eastern its birthplace. Ravenna, subdued by Justinian in A.D. 537, was the connecting link of the early Christian and Byzantine styles.

**ii. Geological.**—The quarry of the ruins of ancient buildings influenced the work of the period, both in construction and decorative treatment; the "opus Alexandrinum" pavement (No. 51 B) is based on the nuclei of slices of old columns, bound together by patterns, formed of fragments of ancient marbles and porphyries from the older Roman buildings.

**iii. Climate.**—See under Roman Architecture.

**iv. Religion.**—In A.D. 313 Constantine issued his celebrated decree from Milan, according to Christianity equal rights with all other religions. Constantine professed Christianity himself in A.D. 323, which then became the religion of the empire. This step led to the practical establishment of Christianity as the State religion, and the Christians, who up to then were an unpopular dissenting sect, and had worshipped in the Catacombs, or burial-places of the early Christians, were now able to hold their services openly and freely.

The Council of Nice, A.D. 325, called by Constantine, was the first of several Councils of the Church for the settlement of disputes about heresies.

A temporary reaction took place in A.D. 360–363, under Julian, known as the "Apostate."

**v. Social and Political.**—On changing the capital of the

empire from Rome to Byzantium in A.D. 324 Constantine practically reigned as an absolute monarch, the old Roman political system coming to an end.

The series of emperors in the West came to an end in A.D. 476, and the empire was nominally reunited, Zeno reigning at Constantinople over the Western and Eastern Empires.

Theodoric the Goth reigned in Italy A.D. 493–526, and this was a period of peace and prosperity. During his reign and longer (A.D. 493–552) Ravenna was the capital of the Gothic dynasty, and being closely connected with Byzantium her influence on Early Christian architecture is very marked.

From the Roman or common speech several of the chief languages of modern Europe commenced to arise, and in consequence are called *Romance* languages.

**vi. Historical.**—The early Christian period is generally taken as lasting from Constantine to Gregory the Great, or from A.D. 300 to 600. The period of the Teutonic invasions of Italy commenced about A.D. 376, and Teutonic settlements took place within the empire about this time, these movements being caused by the incursions of the Huns into Germany.

The West Goths sacked Rome under Alaric in A.D. 410. The rise of a Gothic kingdom took place in Spain and Southern Gaul. The defeat of Attila, king of the Huns, at the battle of Châlons, A.D. 451, aided in consolidating Christianity in Europe.

*Note.*—One style evolves from any other so gradually that it is impossible to say exactly where the one ended and the next began. This gradual growth characterizes progress in other departments as well as Architecture. Each age feels its way towards the expression of its own ideals, modifying the art of the past to meet fresh conditions. During the reign of Gregory the Great (A.D. 590 to 603) the Latin language and Early Christian architecture, the latest phase of Roman art, ceased to exist.

For the next two centuries architecture was practically at a standstill in Europe, at the end of which period the old Roman traditions were to a great extent thrown aside, and the later Romanesque architecture was gradually evolved.

## 2. ARCHITECTURAL CHARACTER.

Naturally little money was at the command of the early Christians; therefore, where possible, it is generally admitted that they adapted the ancient basilicas, which were ready to their hand, for their own places of worship; and in early cases where they



45. The Basilica Church of S. Clemente, Rome.- Roman Early Christ 300-600 ad
Showing projecting Choir and apsidal treatment.



erected new ones, such were generally built from the remains of ancient Roman buildings in the vicinity; and were often situated over the entrances to their former hiding-places or crypts. Thus in the examples of the style are found columns with various ancient capitals, with shafts of various lengths, with or without bases, and made up by the addition of new pieces of stone, or even by double bases.

On this account, although extremely interesting from an archæological point of view, the early buildings can hardly have, in the architect's mind at least, the value for study, which a new manner in architecture, arising from new structural necessities, is certain to possess.

The earlier basilican churches had their columns closely spaced, and were crowned with the entablature which supported the main wall, on which rested the wooden roof (No. 48 B).

As the arch came more into general use these columns could be spaced further apart, being connected by semicircular arches (Nos. 45, 46 A and 47).

The basilican church with three or five aisles, covered by a wooden roof is the special type of the style as opposed to the vaulted types of the Byzantines (Nos. 54, 56 and 57), who in order to place a circular dome over a square space introduced the pendentive (No. 52).

The architectural character is impressive and dignified; the apparent size of the basilicas is increased by the long perspective of the columns, and the comparative lowness of the interiors in proportion to their length.

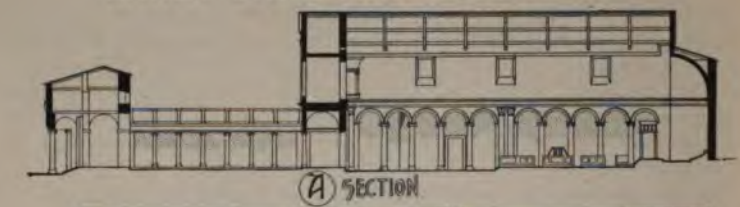
## 3. EXAMPLES.

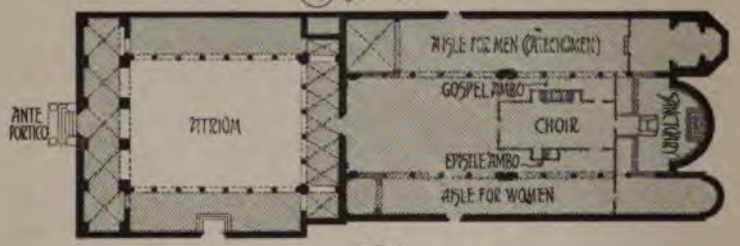
### EARLY BASILICAN CHURCHES.

The remarkable manner in which the basilicas, or Roman halls of justice, were adapted as places of worship for the early Christians made them the stepping-stones from the Classic of pre-Christian times to the Gothic architecture of the Middle Ages, which thus may be said to commence with these Basilican churches.

It should be mentioned, however, that some authorities believe the early Christian churches to have grown out of the Roman dwelling-house, where at first the community were in the habit of assembling, or from the class-room where philosophers used to teach.

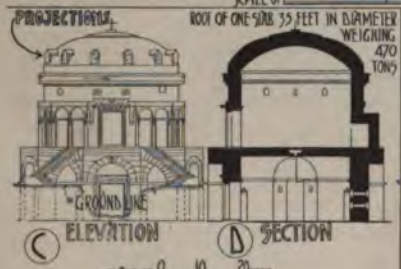
# EARLY CHRISTIAN EXAMPLES I.




## S. CLEMENTE. ROME

SCALE OF 0 100 200 FEET




SCALE OF 0 10 20 FEET




## TOMB OF THEODORIC. RAVENNA AD 530







SCALE OF 0 10 20 30 FEET

## TOMB OF GALLA PLACIDIA. RAVENNA AD 420

How suitable the Roman basilica was for Christian worship is seen from the plan of **St. Clemente, Rome,** A.D. 1084 (No. 46 B), which, although rebuilt in the eleventh century, contains the original interior arrangement of the churches of the fifth century (No. 45).

The *bishop* took the place formerly occupied by the "*prætor*," or "*questor*," until in subsequent ages the seat was moved to the side, becoming the bishop's throne.

The *presbyters*, or members of council of the early Church, took the seats on either side of the bishop formerly occupied by the *assessors*. The apse became the chancel, whose form remained circular-ended in North Europe.

The *altar* in front of the apse, formerly used by the Romans for the pouring out of libations, or sacrifices to their gods, was now used for the celebration of Christian rites. A *baldachino*, or canopy, supported on marble columns, was erected over the altar, which after a time was moved back, and placed against the east wall of the apse (No. 45).

A *choir* was introduced, abutting into the nave. It was inclosed by low screen walls, or "cancelli" (from which the word chancel is derived), and provided with two pulpits, or "ambos," from one of which the gospel was read, and from the other the epistle (No. 45).

A *transept*, called the "bema," or "presbytery," which existed in a modified form in the basilicas themselves, was occasionally introduced, converting the plan into a Latin cross, of which the nave was the long arm. Some consider, however, that this cruciform ground plan was derived from the buildings erected for sepulchral purposes as early as the age of Constantine.

In a few examples, *galleries*, sometimes called "tribunes," were introduced for women. Where none existed, the women were seated on one side of the nave and the men on the other. These Basilican churches have usually three aisles, but St. Paul's, St. Peter's, and St. John Lateran have five aisles. St. Agnes and St. Lorenzo have their side aisles in two heights. The aisles are generally half the width of the nave, or central aisle, the latter being lit by a clerestory of small windows.

Among the glories of these ancient buildings are the mosaics. The apse was generally vaulted with a semi-dome (No. 51 G, K), and covered with mosaics, having a central figure of Christ seated in glory set in relief against a gold background, all executed in glass mosaic ("opus Grecanicum").

> "Below was all mosaic choicely planned,
> With cycles of the human tale."

The pavements of marble and mosaic are extremely fine and characteristic, as at St. Clemente. These pavements were made out of the abundant store of ancient marbles existing in Rome. Slices of old columns formed the centres, round which bands of geometrical inlay were twisted in intricate designs (No. 51 B, L).

The grand decorative effect of these accessories must not be forgotten in criticising the buildings of this style.

Externally the building was approached through an "**atrium**," or fore-court, probably derived from the "forum" generally attached to the Roman basilica; the covered portion next the church was the "narthex," or place for penitents (Nos. 46 B and 48 C, D, E). In the centre of the atrium stood a fountain or well, used by the pilgrims to wash their hands before entering the holy place, a custom which survives in an altered form amongst Catholics who dip their fingers into the stoop, or holy-water basin, placed against the entrance of a church.

The cloisters attached to so many of the English Cathedrals formed part of the original monastic buildings, and probably were suggested by the atrium of this period.

Examples.—**The old Basilica Church of St. Peter** (demolished in the fifteenth century) had a "transept," or "bema," 55 feet wide, and of the height of the nave (113 feet) (No. 48 A, B, C). Five arches, the centre called the arch of triumph, gave access from the body of the church. At the end was a semi-circular apse on a raised floor, in the centre of the back wall of which was the Pope's seat. The priest stood behind the altar, and thus faced east, as the chancel was at the west end of the church.

**St. John Lateran** has been altered so much in modern times as to have lost its early character.

There were in all thirty-one Basilican churches in Rome, mostly made up of fragments of earlier pagan buildings. The interior of these basilicas is impressive and severe, the repetition of the long rows of columns being grand in the extreme, as in the interior view of **St. Paul** (Nos. 47 and 48 E), built A.D. 386 by Theodosius but re-erected in A.D. 1821, and **S. Maria Maggiore** (Nos. 48 D and 49).

There are also important remains at **Ravenna**, a city well situated for receiving the influence of Constantinople, and at one time the seat of an Exarch of the Empire. **S. Apollinare Nuovo**, A.D. 493-525, and **S. Apollinare in Classe**, A.D. 538-549, are important three-aisled Basilica churches carried out by Byzantine artists on Roman models.

These two churches are interesting for their impost blocks, over the capitals, supporting the pier arches, and their fine mosaics.



47. BASILICA CHURCH OF ST. PAUL, ROME.- Early Christ



At **Torcello**, near Venice, the foundations of the original bishop's throne, surrounded by six rows of seats in the apse, still exists, giving a good idea of the Early Christian arrangements.

## BAPTISTERIES

are another description of building met with in Early Christian architecture. They were originally used only for the sacrament of baptism; hence the name "Baptistery." The form was derived from the Roman circular temples and tombs, already described. Until the end of the sixth century of our era the baptistery appears to have been a distinct building; but after this period the font came to be placed in the vestibule of the church. There was generally one baptistery in each city, as at Ravenna and Florence, and it was as a rule a detached building, but usually adjoined the atrium or fore-court.

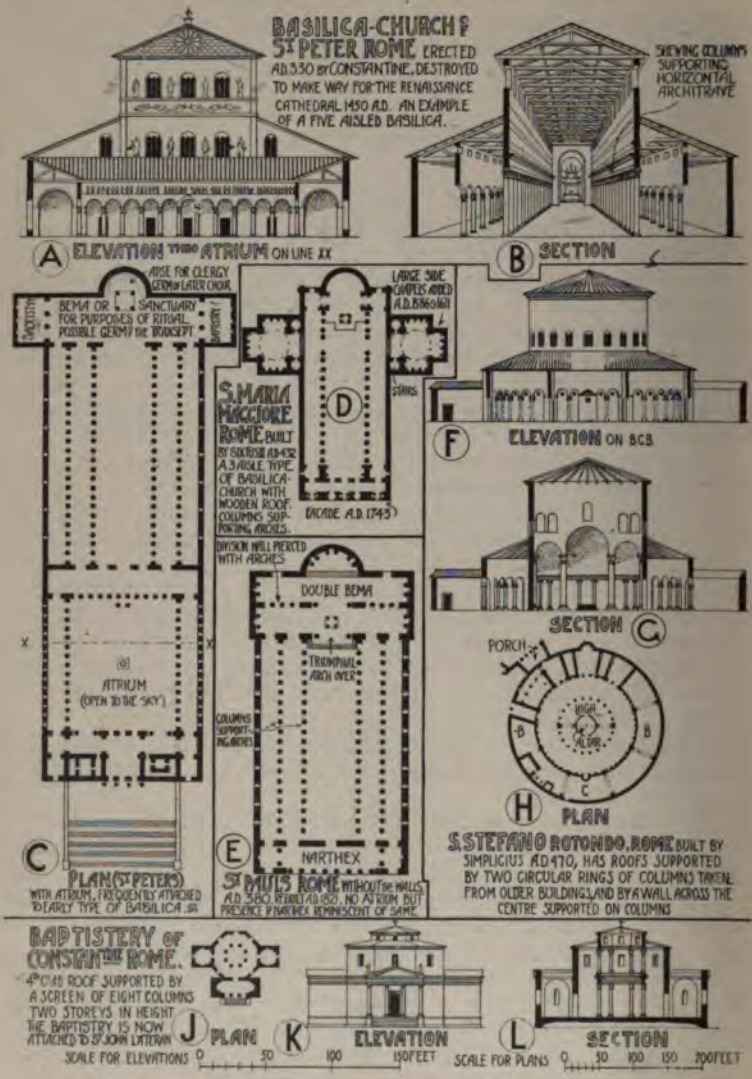
In adopting the Roman tombs as their models for these buildings, the early Christians modified them to some extent, *e.g.*, in the Pantheon, and elsewhere, the columns were *not* used internally for constructive purposes, but simply for decoration. The early Christians, however, supported the walls carrying their domes by means of columns used constructively. It will be seen that to cover a large area with one dome was difficult, and if we imagine the addition of an aisle in one storey round a moderate-sized circular tomb, the inner walls being replaced by columns in the lower half, we shall arrive at just such a building as these early baptisteries (No. 48 H, J).

**The Baptistery of Constantine** at Rome (No. 48 J, K, L) is octagonal, and the roof is supported by a screen of eight columns two storeys in height.

**The Baptistery at Nocera**, between Naples and Salerno, is circular; it has two rows of columns, is 80 feet in diameter, and has a central elliptical dome. This building is vaulted and covered with a wooden roof, and it appears that this is the first time that the latter is introduced in conjunction with the former, as the Roman architects always allowed the stone vault to show externally (ex. the Pantheon). In the case of this building, however, the vault is merely an internal ceiling which is covered with an external wooden roof. This is similar to the practice of Gothic architects, who, in the mediæval period, covered the stone vaults of their churches with timber roofs.

**St. Stefano Rotondo** (sixth century A.D.), though not a baptistery, is a good example of a circular plan of similar type

# EARLY CHRISTIAN EXAMPLES II.





49. Basilica Church of S. Maria Maggiore, Rome. Early Christ



(Nos. 48 F, G, H, and 50), is 210 feet in diameter, and has its roof supported on two circular rings of columns, all taken from older buildings; the outer range support arches, and the inner a horizontal architrave.

## TOMBS.

**The Tomb of Galla Placidia** (A.D. 450) at Ravenna (No. 46 H, J, K), is exceptional, the circular form being abandoned. This building is cruciform in plan, being 35 feet by 30 feet internally. There is a raised lantern at the crossing, having four windows. It is domed by a portion of a sphere, cutting each wall face in a semi-arch (No. 52 H). Each of the arms of the cross contains a sarcophagus, and the interior is remarkable, as it retains all its ancient polychromatic decoration in mosaics.

**The Tomb of Theodoric at Ravenna** (A.D. 530) (No. 46 C, D, E, F, G) is two storeys in height, the lower storey being a decagon containing a cruciform crypt. It is 45 feet in diameter; each face is pierced with a niche. Traces remain of an external arcade round the lower portion, standing on the decagonal basement. The roof consists of one slab of stone, hollowed out in the form of a flat dome, 35 feet in diameter, and round the edge of this block are stone handles, originally used to place this immense covering in position. The ashes of the founder were placed in an urn on the top of the covering.

**In Syria,** a number of interesting monuments were erected between the third and eighth centuries, notably those by Constantine—the church of the Nativity at Bethlehem, the church of the Ascension at Jerusalem, and the octagonal church of the Holy Sepulchre on the site of the Temple.

The Syrian type appears soon to have broken away from Roman influence, due largely to the abundance of hard stone, the absence of brick, and the distance from Rome. Piers were used instead of columns, and roofs formed of stone slabs were usual. A favourite plan was a circle placed in a square, the angles being filled with niches, as at the churches at Bozrah and Ezra. Such are considered to be prototypes of later Byzantine churches of the type of S. Sergius, Constantinople (No. 52 E, F), and S. Vitale, Ravenna. Salonica possesses important examples, notably the domical church of S. George. In *Asia Minor*, as at Ancyra, Pergamus, and Hierapolis, and in *Egypt* and *Algiers* are many examples of basilican and circular buildings of the Early Christian period.

## 4. COMPARATIVE.

A. **Plan.**—The early Christians adopted the Basilican form for their churches (Nos. 46 and 48).

Besides the basilicas, the halls, baths, dwelling-houses, and even the pagan temples were used by the Christians for places of worship.

An isolated circular church (see above), generally attached to the chief Basilica (or cathedral), was used as a baptistery.[1]

B. **Walls** were still constructed according to the Roman methods, which, however, became more and more debased as time went on. Rubble or concrete walling was used, faced with plaster, brick, or stone; mosaic was used internally, and sometimes externally on the west façades for decorative purposes.

C. **Openings.**—In regard to the doors and windows, we find they were generally arched, the use of the lintel being dispensed with. The form of the arch was semicircular, and the window openings were small (No. 51 D, F); the aisles were lighted by windows in the aisle wall, and the nave by clerestory windows, a feature to be further developed in the later Gothic architecture (Nos. 46 A and 48 B, G).

D. **Roofs.**—Wooden roofs (No. 48 B), covered the central nave, a simple form of construction such as King and Queen post trusses being employed. Fergusson considers that these roofs were ceiled in some ornamental manner, the decoration of a visible framework being of a later date, as at S. Miniato, Florence (No. 65). The side aisles in the later basilica churches were occasionally vaulted, and the apse was usually domed and lined with mosaic (Nos. 45 and 51 G, K).

[1] In later Romanesque and Gothic periods, these early baptisteries, themselves founded on the Roman circular temples and tombs, were treated as follows in the different European countries:

In **Italy**, where the churches are not derived from a combination of a circular eastern church with a western rectangular nave, as in France, but are direct copies of the Roman basilica, we find that the circular Roman building develops into a baptistery, which always stands apart, not becoming part of the church.

In **France**, circular churches were built to stand alone, and when it was necessary to enlarge them, the circular building was retained as the sanctuary or choir, and a straight lined nave was added for the use of the people. Thus the circular church originated the apsidal choir of later times.

In **Germany**, the earlier baptistery was joined to the square church and formed a western apse. The Germans also built circular churches, and then added choirs for the priests, that they might pray apart from the people.

In **England**, the Gothic builders generally preferred a square east end, except where French influence made itself felt, as at Westminster. Circular churches were erected, as the Temple Church, London, but they were few in number, and due to the Knights Templars, being built as copies of the Holy Sepulchre at Jerusalem.



50. S. Stefano Rotondo, Rome. —



E. **Columns** are the most interesting feature of what we may call the Basilica style; they were mostly fragments of earlier Roman buildings which had either fallen into ruins or were destroyed for the purpose (No. 51). For this reason on visiting an interior you will often find them of different design, size, and treatment (No. 45). It was natural that the early Christian builders, not being good craftsmen themselves, should use in their buildings the materials and ornaments which were ready to hand, and which had been left by the pagan Roman. The rich and grandiose effect which is the character of these buildings was thus easily obtained, but often at the expense of fitness in the details of the design.

F. **Mouldings** are coarse variations of Roman types, and the carving is of the rudest kind, though rich in general effect. Technique, or the power of handling tools, had been gradually declining since the time of the Greeks, and the decay continued.

Enrichments were in low relief, and incised upon mouldings, and the acanthus leaf, although still copied from the antique, became more conventional in form.

G. **Ornament.**—The introduction of much colour into interiors is a feature of the period.

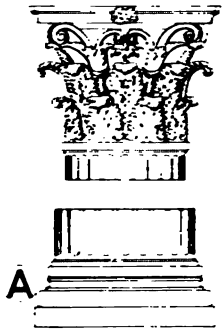
The apse, as has been mentioned, was domed and lined with mosaic, the subject generally being Christ surrounded by angels and saints (No. 45).

The arch of triumph preceding the apse is occupied with appropriate subjects, and long friezes of figures line the wall above the nave arcades. The wall spaces between the clerestory windows have subjects drawn from Christian history or doctrine (Nos. 45, 47 and 49).

The figures are treated in strong colours on a gold background. The design is bold and simple, both in form and draperies, and an earnest and solemn expression, fitting well the position they occupy, characterizes the groups. The method of execution is coarse and large, and no attempt is made at neatness of joint or regularity of bedding. The interiors, while bright and free from gloom, are, by the aid of these mosaics, full of solemnity.

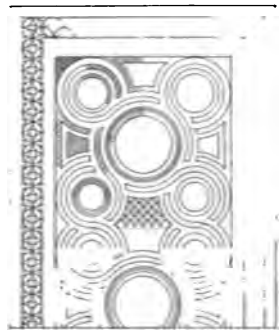
It will be seen that besides having regard to the internal effect of the walls, thus coloured with mosaics, pavements of coloured marbles were also employed, being laid out in geometrical patterns, adding greatly to the rich effect of their interiors (Nos. 45 and 51 B). These pavements were formed largely of slices from the old Roman porphyry columns, which were worked into designs by connecting bands of geometrical inlay on a field of white marble. A good idea of this work,

# EARLY CHRISTIAN ORNAMENT



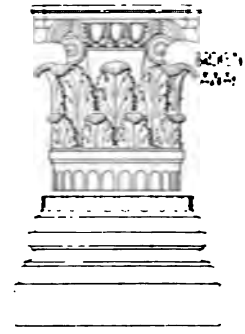
A

CORINTHIAN COLUMN, ST PAUL ROME



FLOOR MOSAIC. S LORENZO FUORI LE MURA, ROME

B



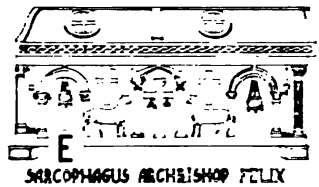
COMPOSITE COLUMN, ST PAUL ROME

C



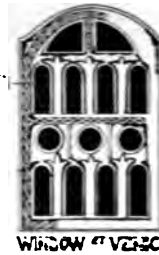
WINDOW GRADO CATHEDRAL AD 571-586

D



SARCOPHAGUS ARCHBISHOP FELIX S^T APOLLINARIS-IN-CLASSE, RAVENNA AD 725

E



WINDOW AT VENICE VIII CENTURY

F



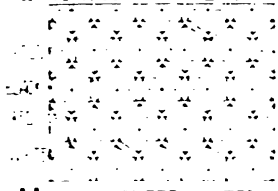
MOSAIC IN APSE S^T AGNESE ROME

G



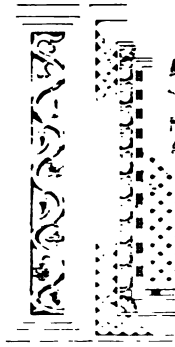
MOSAIC IN NAVE S^T MARIA MAGGIORE ROME AD 868

K



MOSAIC PAVEMENT IN S^T GIOVANNI, ROME

H



PARAPET IN CHOIR OF S^T CLEMENTE AD 514-523

J



MOSAIC FLOOR SAN GIOVANNI E PAOLO, ROME

L

called "opus Alexandrinum," may be seen in the chancel of Westminster Abbey.

Of a finer and more delicate expression was the glass mosaic used to decorate the ambos, screens, and episcopal chairs, as in the fittings of the church of San Clemente at Rome (No. 51).

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# BYZANTINE ARCHITECTURE.

"So fair a church as this had Venice none:
The walls were of discolored Jasper stone
Wherein was Christos carved; and overhead
A lively vine of green sea agate spread."—CHAUCER.

## 1. INFLUENCES.

i. **Geographical.**—Geographically speaking, Constantinople occupies the finest site in Europe, standing on a bold peninsula between the Sea of Marmora and the curved inlet called the "Golden Horn." It is called "Rome" by the Turks of Asia, and, like the other Rome in Italy, it rests on seven hills. It occupies one of the most important commercial sites on the globe, standing at the intersection of the two great highways of commerce—the water high-road from the Black Sea into the Mediterranean, and the land high-road from Asia into Europe; a position which, in the times of which we are writing, gave it power and influence.

ii. **Geological.**—As far as possible the materials upon the spot had to be employed. The cupola of Santa Sophia is of pumice and bricks from the island of Rhodes. The walling consists of brick, faced with marble. The bulk of the marble used in Santa Sophia and in Constantinople generally is local as regards the Mediterranean.

Constantinople was a marble working centre from which sculptured marbles were dispersed to all parts of the Roman world.

A writer on the subject, Mr. Brindley, is of opinion that quite seventy-five per cent. of the coloured marble used in Santa Sophia, and the other churches and mosques in Constantinople, is Thessalian green (Verde Antico). He supposes that the architect was influenced by the kind of column likely to be at once obtainable, as the quarries were situated in different parts

of the empire, and were worked by convict labour, the monolith columns being worked in groups of sizes such as the quarry could produce.

**iii. Climate.**—Being further east than Rome, and having a hotter climate, Oriental customs in building had to be assimilated by the Romans on settling at Constantinople.

**iv. Religion.**—It was Constantine who first made Christianity the state religion. The political division that came to pass between east and west was followed by a separation of churches also. The east declined to go with the west in adding to a creed (the Filioque controversy), and still claims to be the orthodox church. The iconoclastic movement ended in the admission of painted figures in the decoration of churches, but all sculptured statues were excluded. These and other points of difference in ritual have vitally affected eastern church architecture.

**v. Social and Political.**—The geographical position of Constantinople insures the presence of a large trading community. Constantine removed the capital there from Rome in A.D. 323. His system of government was an expansion of the despotic methods introduced by Diocletian. After his death rival emperors troubled the state, and disputes in the church were rife—the Council of Nice in A.D. 325 was the first of the general councils called to suppress heresies. During the eighth and ninth centuries the iconoclastic movement was in force. The eastern emperors lost all power in Italy by endeavouring to force their policy in this matter upon the west. By the election of Charlemagne, chosen Emperor of the West in A.D. 800, the Roman empire was finally divided.

**vi. Historical.**—Byzantium was a Greek colony in the fourth century B.C. Byzantine architecture is that which was developed at Byzantium, or Constantinople, on the removal of the capital of the Roman Empire to that city, in the fourth century A.D., by Constantine. This style was carried on until the city fell into the hands of the Turks in 1453, when it became the capital of the Ottoman empire. During the reign of Justinian (A.D. 527–565), who erected Santa Sophia at Constantinople, the whole of Italy was recovered to the Eastern Empire, accounting for the style of some of the buildings in Italy which we shall notice.

Thus the Byzantine style includes not only the style developed in Byzantium itself, but also those buildings which were erected elsewhere under its influence, the chief of which we shall notice in this section. After the defeat of the Visigoths, Italy was placed under the rule of a delegate of the Byzantine Emperor,

who from A.D. 552–752 had his seat at Ravenna, a city which during this period rivalled Rome in importance, and where consequently we find some important examples of the style.

## 2. ARCHITECTURAL CHARACTER.

The change from the old Roman forms was of course gradual, but in the course of 200 years the East asserted herself, and under Justinian, the Church of Santa Sophia (A.D. 532–538) was erected, and remains the greatest achievement in the style—being perhaps the most satisfactory of all domed interiors.

Although no line can be stated as separating distinctively the Early Christian and Byzantine styles, yet as already stated the Basilica type is characteristic of the former and the vaulted church with pendentives of the latter.

The general architectural character depends thus on the development of the dome, induced by the adoption firstly of circular and polygonal plans for churches as well as tombs and baptisteries. This is in contrast with the Romanesque style, which we shall see developed the vault in Western and Northern Europe.

The **dome** is the prevailing *motif* or idea of Byzantine architecture, and had been a traditional feature in the old architecture of the East. M. Choisy, in his "Art de Bâtir chez les Byzantins," traces the influence of this Oriental tradition on Greek architecture, to show how from this fusion the later imperial architecture proceeded. The classic orders are dispensed with, and the semicircular arches rest directly on columns, specially designed for the purpose. In the interiors, carving and sculpture give way to grand decorative work in coloured mosaic on a background of massive gold, covering the whole surface of the wall.

Richly coloured marble pavements in *opus sectile*, in which the geometric patterns are in single blocks of marble, or *opus Alexandrinum*, in which they are formed of minute pieces of uniform size, give special character.

In the exteriors (No. 52) the grouping of the smaller domes round the larger central one was very effective, one of the most remarkable peculiarities of these churches being that the tunnel vault retains its form externally, as in the case of a dome (No. 54 A). In no style does the elevation so closely correspond with the section as in the Byzantine. An attempt was made to render the rough brick exteriors of Roman times more pleasing,

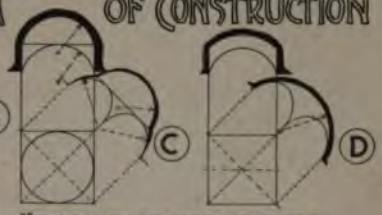
# BYZANTINE SYSTEM OF CONSTRUCTION

## DOME CONSTRUCTION




A SHEWING METHOD MENTIONED BY CHOISY OF CONSTRUCTING DOMES WITHOUT CENTERING, BY MEANS OF RODS FREE TO MOVE IN ALL DIRECTIONS AND ATTACHED TO A CENTRAL POST.

B REPRESENTS METHOD FOR OBTAINING FLATTER JOINTS TO THE COURSES THUS DIMINISHING THRUST



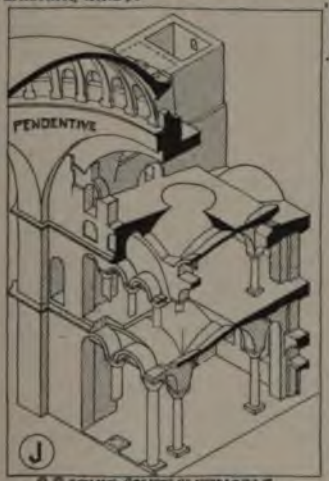

METHOD TO FIND OUTLINE OF PENDENTIVE

C WHEN PENDENTIVE & DOME FORM PORTIONS OF TWO DISTINCT SPHERES.

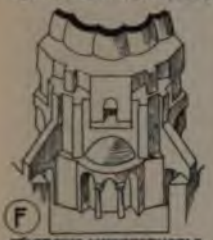
D WHEN PENDENTIVE & DOME FORM PORTIONS OF ONE SPHERE.




St SERGIUS CONSTANTINOPLE SECTIONAL INTERIOR VIEW




S. SOPHIA CONSTANTINOPLE SECTIONAL VIEW




St SERGIUS CONSTANTINOPLE PORTION EXTERIOR VIEW




PLAN




TOMB OF GALLA PLACIDIA AT RAVENNA. A.D. 420




S. SOPHIA CONSTANTINOPLE EXTERIOR VIEW (AFTER CHOISY)

by the use of bands and relieving arches of an ornamental character.

A Byzantine building consists generally of a brick carcase or "shell," the wall being sheeted with marble, and the vaults with mosaic, the marble columns and cornices being added on the completion of this "shell."

Byzantine art was carried westward by traders, and we find at St. Mark's, Venice, St. Vitale, Ravenna, St. Front Périgueux, France, and elsewhere, Byzantine influences at work, which account for, and largely direct, the architecture of those districts.

The science of construction acquired by the Romans descended to the Byzantines. The construction of the walls with a brick facing and concrete interior is merely an extension of the Roman system, and need not be discussed. It was employed not only for walls, but also for vaults, bridges, and aqueducts. As has been pointed out, the building procedure was developed somewhat in this direction: the general form of the building being more or less decided, the first thing necessary was to collect monolithic marble shafts, and it was necessary to have a certain knowledge where such might be quarried or otherwise obtained, before even the foundations were prepared, for the columns decided the height and points of support of the building. These columns once assured, the body of the structure was proceeded with, as a brickwork shell without further dependence on the masons, who were only required to prepare the bases, capitals, and cornices, everything else being completed as a brick "carcase." The building was thus made of vast masses of thin bricks, the mortar composing half of the aggregate; when this had settled down and dried, the walls were sheeted with their marble covering, the vaults overlaid with mosaic, and the pavement laid down. In this way the carcase was completed at once, the bricklayers not having to wait for the masons; and, further, by reserving the application of the marble until the structure was dry and solid, it was possible to bring together unyielding marble and brickwork with large mortar joints that must have settled down very considerably. The independence of masonry unequally charged was a leading idea in Byzantine construction; indeed, it is obviously necessary when the quantity of mortar is so great that the brick at times becomes secondary in height to the joints.

Brick, moreover, was the material preferred in the construction of churches; it lent itself best to all the caprices of the architect; and as the interiors were always lined with marble and mosaics, or decorated with paintings, such walls were the most suitable for the reception of these kinds of ornamentation. In countries abounding with good building stone we find the architects



53. SANTA SOPHIA, CONSTANTINOPLE.

Byz - Early Christ 300-600 ad



preferring to use brick. The forms of the bricks varied infinitely in Byzantine times, but the ordinary brick was like the Roman, an inch and a half in thickness, and was always laid upon a bed of mortar, at least half an inch in thickness. Moulds were used for the pieces forming cornices, and the shafts of columns when of this material were built of circular bricks.

In fact, brick-making was a feature of the period, and it is not surprising that the Byzantines took great pains with their fabrication when it is remembered that they were employed in their military as well as in their ecclesiastical and domestic architecture. The core of the wall was naturally of concrete, as in the Roman period, but the manner in which the bricks of the casing were arranged contributed greatly to the decoration of the exterior of buildings. They were laid, not always horizontally, but sometimes obliquely, sometimes arranged in the form of the meander fret, sometimes in the chevron or herring-bone pattern, and in many other forms of similar design, giving great richness and variety to the façades, as may be seen in the churches of Thessalonica. Further, the universal use of brickwork made the Byzantines pay great attention to their mortar, so much so that it remains at the present day as hard as that in the best buildings of Rome itself. It was composed of chalk, sand, and brickdust. In vaulting, porous stones, especially pumice, were used; sometimes the domes were constructed of pottery, as at St. Vitale at Ravenna, where it is formed with urns and amphoræ placed side by side and grouted with mortar. It may also be said that Byzantine architecture was developed by the use of brick in the frankest and fullest manner, especially in domical vaulting, and that, further, an absence of preparatory and auxiliary work is remarkable. In this respect, M. Choisy remarks that, the "greater number of their vaults rose into space without any kind of support" (*i.e.*, without centering), by the use of large flat bricks. Choisy further proceeds to say that it is quite a distinct system, not even derived from a Roman source, but Asiatic; and that Byzantine art is the Greek spirit working in Asiatic elements, for the dome on pendentives was invented and perfected entirely in the East. In the Byzantine system of vaulting, the vault surfaces gave the conditions of the problem and the groins or angles of intersections were of secondary importance; presenting a direct contrast to the mediæval buildings of Europe.

In regard to Domes, these are now placed over square apartments, their bases brought to a circle by means of "pendentives" (Nos. 52, 54, 55, 56, 57 and 83 c); whereas in Roman architecture the Dome was as a rule placed over a circular apartment.

In regard to exteriors, from the time when the architect

But, further, the use of natural stones in mosaics and inlaid pavements had been abolished, and the art of enamelling had arrived at perfection. All the mosaics which still adorn these domes and apses are of coloured enamel, that is to say, of glass rendered opaque by oxide of tin. The invention of gilt glass for the ground of pictures in mosaic was, nevertheless, anterior to the reign of Justinian.

From the possession and extensive use of these rich marbles, a flat treatment, with an absence of mouldings, cornices, and modillions prevailed, while externally the use of coloured brick is seen in conjunction with stone; mouldings were subordinate to the decorative treatment in marble mosaic; and the simple treatment of the exteriors in flat expanses of brickwork did not leave the same scope for mouldings as in other styles. Flat splays enriched by incised or low relief ornamentation were introduced, and in general mosaic and marbles were used, in broad way, as a complete lining to a rough carcass; architectural lines were replaced by decorative bands in the mosaic, which was worked on rounded angles. One surface melts into another as the mosaic sheet creeps from arch to pendentive up to the dome; while the gold of the background is carried into the figures, and unity of surface thus always maintained.

In Byzantine buildings, then, the logical outcome of Roman methods of construction is seen; dome and vault are here freed from the Greek trabeated system, and advanced to the dignity of a style, through the acceptance of a novel principle and the discovery of an architectural expression suited to it. The use of rough and small materials involved the constructive principle of the arch, dome, and vault, and these forms were the elements of the new style; the development of which was further extended by the influence of material in the creation of fresh and expressive details adapted to its forms.

## 3. EXAMPLES.

**Santa Sophia at Constantinople** (No. 54) was built by order of Justinian in A.D. 532–537, the architects being Anthemius of Tralles and Isodorus of Miletus.

The plan (No. 54 c) consists of a central space bounded by four massive piers, 25 feet square, connected by semicircular arches, and supporting a dome of 107 feet in diameter, rising 180 feet above the pavement. The base of this dome is pierced by forty small windows, lighting the central area. Against the




55. SANTA SOPHIA, CONSTANTINOPLE.

Early Christ 300-600





56. S. Mark's, Venice.- Byz - Early Christ 300-600.



eastern and western arches of the dome abut half-domes; thus a long oval interior is formed. Within the depth of the south and north arches are galleries in two storeys, the upper being for women. In the spandrel walls, which stand up on the front line of the gallery arcades, are ranged tiers of narrow windows giving additional light to the interior (No. 55). The two storeys of arcaded galleries, the numerous small windows, all these in the relation of their parts, give scale to the interior. The abutment of these side arches of the dome, not having half-domes resting against them, is taken by huge external buttresses. Out of these half-domes grow smaller semi-domes. The floor space is made rectangular by the angles being filled it with domes.

"Simple as is the primary ideal, the actual effect is one of great intricacy, and of continuous gradation of parts, from the small arcades up to the stupendous dome, which hangs, with little apparent support, like a vast bubble over the centre, or as Procopius, who witnessed its erection, described it, 'as if suspended by a chain from heaven.'"—SIR GILBERT SCOTT.

In front of the outer narthex is an entrance court surrounded by a colonnade. The great piers are constructed of squared stones, the rest of the building is of brickwork. Internally the walls, piers, and floor are lined with coloured marbles fixed to the walls by metal cramps, the vaults are enriched with mosaics of the apostles and angels on a golden ground, and the columns are of precious and many-coloured marbles, with bronze rings connecting the shafts with capitals and bases (No. 55).

Externally, the vaulting of the domes is visible (No. 53), being covered with lead ¼ inch thick resting on wooden battens placed immediately on the brick vaults. The minarets, or towers, shown in the illustrations, have of course been added in Mahometan times. The beautiful mosaics are partially covered up and replaced by quotations from the Koran (No. 55).

Santa Sophia is the masterpiece of Byzantine architecture as the Parthenon is of Greek or the Pantheon of Roman, but neither in plan nor treatment does it seem to have been largely imitated, especially in regard to the abutting semi-circular domes.

**S. Vitale at Ravenna** (A.D. 526–547) whose prototype was the Temple of Minerva Medica at Rome (No. 30 M) is octagonal on plan, an inner octagon of 50 feet being enclosed by an outer one of 110 feet. The apsidal chancel opens from the inner octagon, by a square bay cutting through the outer aisle. The relation of the chancel to the octagon is successfully designed. It is to be noted that the other seven arches of the inner octagon have columns placed on a half circle, carrying round the gallery usual in Eastern churches. In many particulars Byzantine influences are seen.

# BYZANTINE EXAMPLES II

## COMPARISON OF St. MARKS AND St. FRONT

### St. MARKS VENICE

(A.D. 1063-1071)
(NARTHEX 1100-1350)

A GREEK CROSS IN PLAN WITH CENTRAL DOME & ONE OVER EACH ARM OF THE CROSS. THE PLAN PROBABLY DERIVED FROM THE CHURCH OF THE APOSTLES AT CONSTANTINOPLE DEMOLISHED IN THE 15TH CENTURY.




SECTION ON X.X.

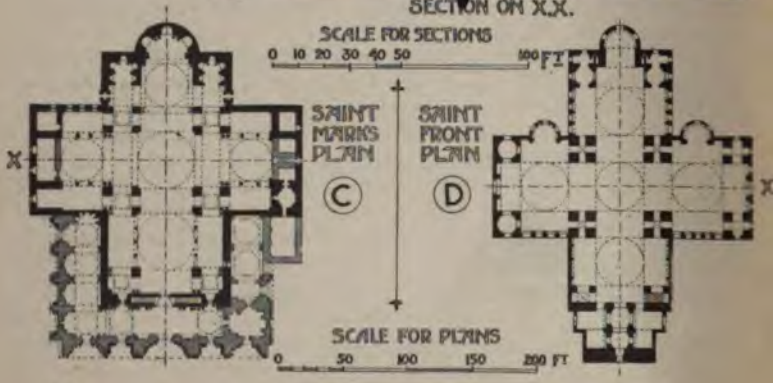
### St. FRONT PERICUEUX

(A.D. 1120)

IS A MODIFIED COPY OF St. MARKS




SECTION ON X.X.





58. S. Mark's, Venice. – Byz – Early Christ 300–600 – Mill cent

# BYZANTINE EXAMPLES II

## COMPARISON OF St. MARKS AND St. FRONT

### St. MARKS VENICE.

(A.D. 1063-1071)
(NARTHEX 1100-1350)

A GREEK CROSS ON PLAN WITH CENTRAL DOME & ONE OVER EACH ARM OF THE CROSS. THE PLAN PROBABLY DERIVED FROM THE CHURCH OF THE APOSTLES AT CONSTANTINOPLE DEMOLISHED IN THE 15TH CENTURY.

WOODEN CUPOLAS ARE OF LATER DATE




SECTION ON X.X.

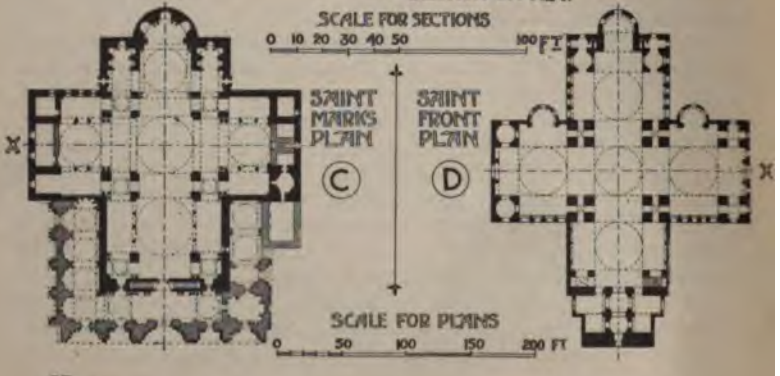
### St. FRONT PERICUEUX

(A.D. 1120)

IS A MODIFIED COPY OF St. MARKS




SECTION ON X.X.





58. S. Mark's, Venice. – Byz – Early Christ
300 – 600 – Bk Art



The dome is composed of earthen pots, and protected by a wooden roof, thus differing in construction from Roman examples.

The church built by Charlemagne, and containing his tomb, at Aix-la-Chapelle, is derived from this church. (See p. 178.)

**SS. Sergius and Bacchus** at Constantinople (A.D. 520) has an interior arrangement very similar to S. Vitale, but it has four niches only, and is enclosed in a square instead of an external octagon (No. 52, E, F, G). The dome is visible externally, having no wooden roof, and is of a peculiar melon-like form caused by the lunettes at the base being raised and ridges and furrows formed from their top and base. This church, picturesquely situated on the shores of the Bosphorus, is in a ruinous condition, but was being partially restored by the Sultan at the time of the authors' visit in January, 1896. The beautiful frescoes and mosaics are, however, irreparably damaged in consequence of the penetration of wet through the roof.

**St. Mark's, Venice** (Nos. 56, 57 and 58) was erected, for the most part between A.D. 1063–1071, the columns and marble mosaics to the exterior being added between 1100–1350. Venice was by situation the connecting link between the Byzantine and Franconian empires, and the great depôt of the traffic between the East and West. This influence is shown in her buildings.

The **plan** of St. Mark's (No. 57 C) is in the form of a Greek cross, of equal arms, covered by a dome in the centre (42 feet in diameter), and one over each arm of the cross. It is derived from the Church of the Holy Apostles at Constantinople (the second type of Byzantine plan) built by Justinian and pulled down by Mahomet II. in the fifteenth century. A point in the plan is that the square piers, which carry the dome, are pierced on the ground floor and gallery levels: the gallery arcade connects the piers on either side, the depth of the gallery being that of the pier. The vestibules fill out the western arm of the cross to a square on plan.

The interior (Nos. 56 and 57 A) is richly veneered with coloured marbles casing the lower part of the walls; above, and extending in one great surface over vault and dome, is a lining of richly coloured glass mosaic, in which are worked figures of saints mingled with scenes from their lives, set off by a broad background of gold. Mosaic, in fact, is the real and essential decoration of the church, to which all architectural detail is subordinated.

The exterior façade (No. 58) has five entrances enriched with shafts of many-coloured marbles, brought from Alexandria and the ruined cities of the East, forming a rich and beautiful portal. Mosaic panels also serve to enrich with colour the spandrels of the arches. It must be remembered that this and the external

domes are a later casing upon the original exterior of the usual Byzantine type (No. 57 A).

*Note.*—"The effects of St. Mark's depend not only upon the most delicate sculpture in every part, but, as we have just stated, eminently on its colour also, and that the most subtle, variable, inexpressible colour in the world—the colour of glass, of transparent alabaster, of polished marble, and of lustrous gold."—RUSKIN.

In **Greece** and **Russia** the Byzantine style has been the accepted treatment of the Greek Church up to the present day. In Greece the buildings are small, but often exquisitely executed, as the *Church at Daphni*, near Athens; the well-known *Cathedral at Athens* (No. 59 A–E), and the *Church of the Theotokos* at Constantinople (No. 59, F–J).

In Russia, as in the Cathedrals at Moscow, Kieff, Novgorod and elsewhere, the buildings have a decided eastern aspect in consequence of the use of bulbous-shaped domes and unusual details.

In Armenia are also to be found interesting examples with local characteristics.

## 4. COMPARATIVE.

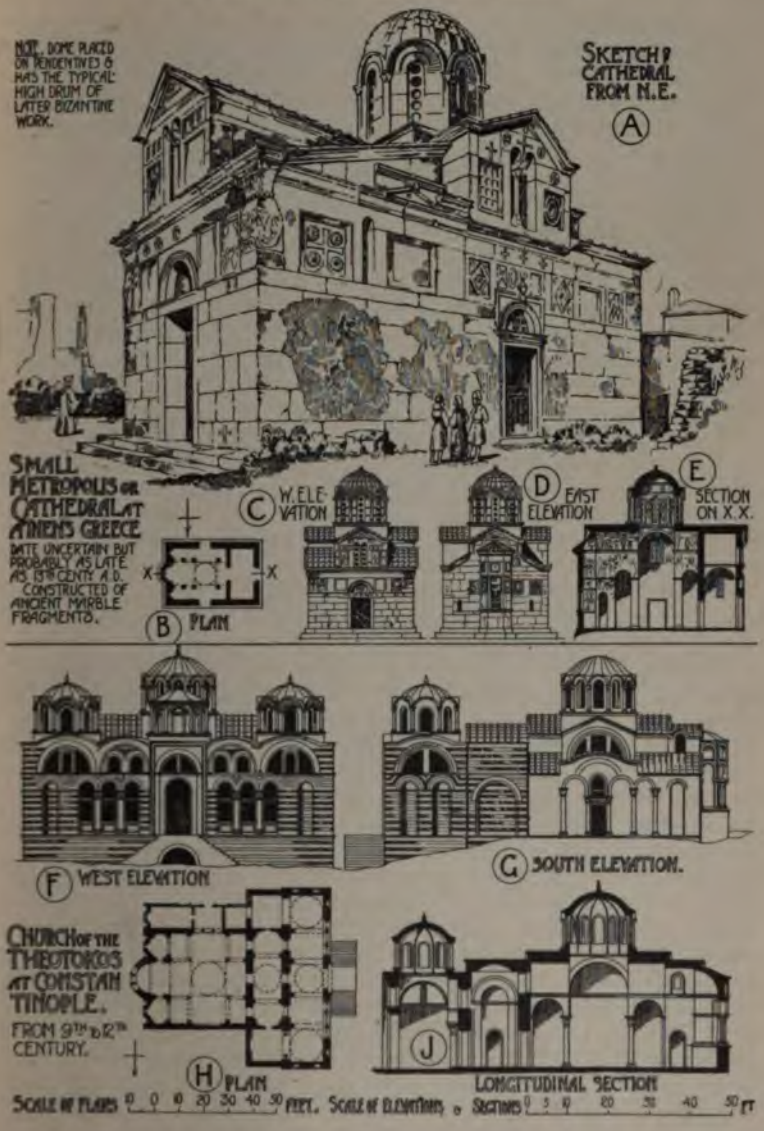
A. The **plans** of Byzantine churches are all distinguished by a great central square space covered with a dome, supported by means of pendentives, clearly shown in No. 52 J, K. In early Byzantine examples the pendentives and dome are part of one sphere. On each side extend short arms, forming a Greek cross on plan, which with the narthex and side galleries make the plan nearly square (No. 57). The narthex was placed within the main walls.

Compare:

| A BYZANTINE CHURCH. | AN EARLY CHRISTIAN BASILICA. |
|---|---|
| The eye is drawn to the centre of the building, the great central dome. | The form compels us to look towards the apsidal termination. |
| The leading thought is vertical by the grouping of domes round a principal central dome. | The leading idea is horizontal by means of a long perspective of columns. |

B. **Walls.**—All the oriental love of magnificence was developed internally, while externally the buildings are comparatively plain. Internally, marble casing and mosaic were applied to the walls, often constructed of brick. Therefore a flat treatment and absence of mouldings prevailed. Externally the façade is sometimes relieved by alternate rows of stone and brick, in various colours.

# BYZANTINE EXAMPLES III.



c. **Openings.**—Doors and windows are semicircular headed (No. 61 G, H), but segmental and horse-shoe arched openings are sometimes met with.

The windows are small and grouped together (Nos. 54 A and 59). The universal employment of mosaic in Byzantine churches, and the consequent exclusion of painted glass, rendered the use of such large windows as the Gothic architects employed quite inadmissible, and in such a climate very much smaller openings sufficed to admit all the light that was required. Tracery was, in consequence, practically non-existent as a northern architect would understand it. The churches depend largely for light on the ring of windows at the base of the dome, or in the "drum," or circular base on which the dome is raised (No. 56), and upon openings grouped in the gable ends (No. 54 A). Such windows, grouped in tiers within the semicircular arch beneath the dome, are a great feature in the style.

Portions of the windows are occasionally filled with thin slabs of translucent marble (No. 61 G).

D. **Roofs.**—The method of covering these buildings consisted of a series of domes formed in brick, stone, or concrete, with frequently no further external covering. In S. Sophia the vaults are covered with sheets of lead, a quarter of an inch thick, fastened to wood laths, resting on the vaults without any wood roofing (No. 54 B). Hollow earthenware was used in order to reduce the thrust on the supporting walls.

The Byzantines introduced the dome placed over a square or octagonal plan by means of pendentives (No. 52 J). This type of dome is not found in Roman work.

A good idea of one type of a Byzantine dome is obtained by halving an orange, cutting off four slices, each at right angles to the last, to represent the four arches; then by scooping out the interior; the portion above the crown of these semicircles is the dome, and the intervening triangles are the pendentives. Such domes are rare, however, perhaps the only example in Europe being that over the tomb of Galla Placidia (No. 46 H, J, K) already described (page 121). In the other type the dome is not part of the same sphere as the pendentives, but rises independently from the summit of these (No. 83 C). At first the domes were very flat; in later times they were raised on a drum or cylinder.

E. **Columns** were often, in the earlier buildings, brought from more ancient structures. These were naturally not so numerous in the East as in the neighbourhood of Rome, consequently the supply was sooner exhausted; and thus an incentive to design fresh ones was provided. Capitals sometimes took the form shown in the illustration (No. 60), or consisted in the lower



60. Byzantine Capitals.
From S. Mark's, Venice.



portion of a cube block with rounded corners, over which was placed a deep abacus, or block, sometimes called a "dosseret," representing the expiring classic architrave, and which aided in supporting the springing of the arch, naturally larger in area than the shaft of the column. An altered shape of capital was required, as an arch instead of a beam had to be supported, for which a convex form was better adapted. The surfaces of these capitals were carved with incised foliage of sharp outline, having drilled eyes as a relief (No. 60), between the springings of each leaf. Several other types are shown in No. 61.

Columns were always subordinate features, and often only introduced to support galleries, etc., the massive piers alone supporting the superstructure.

F. **Mouldings.**—Internally these were subordinate to the decorative treatment in marbles and mosaic. Flat splays, enriched by incised or low relief ornamentation, are used. Externally the simple treatment of the elevations in flat expanses of brickwork, etc., did not leave the same scope for mouldings as in other styles.

G. **Ornament** is the most interesting feature in the style; the walls being lined with costly marbles, and with figures in which the peacock (as the emblem of immortal life), continually occurs in glass mosaic (No. 56), in contrast to the painted frescoes which were more generally adopted in western Romanesque churches.

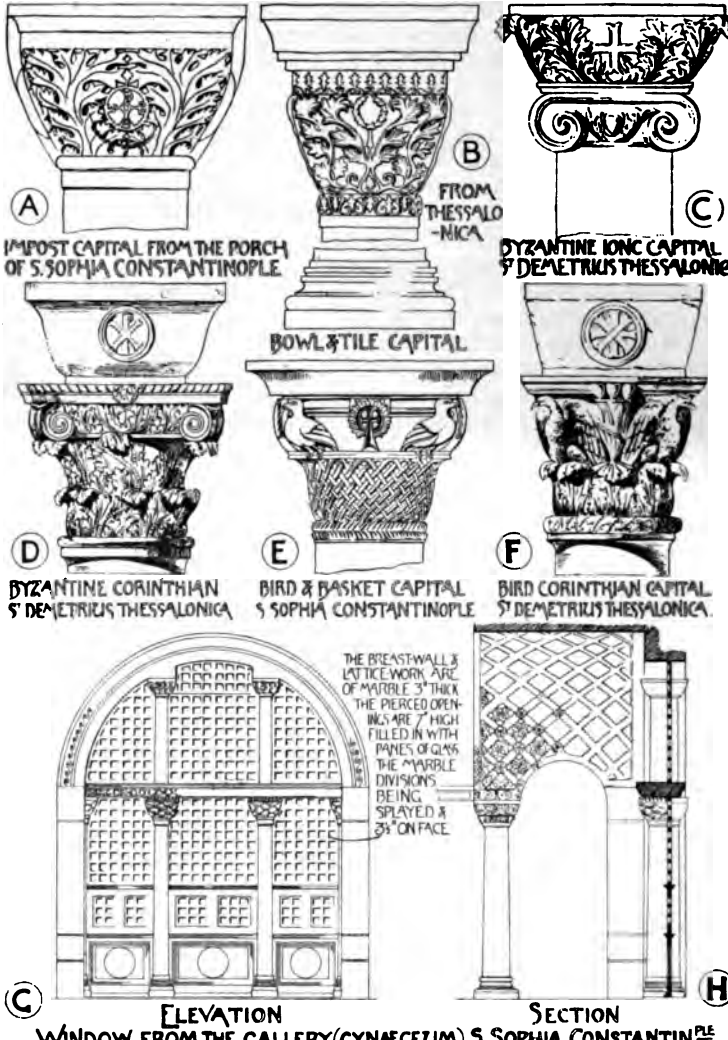
Mosaic was used in a broad way as a complete lining to a rough carcass. Architectural lines are replaced by decorative bands in the mosaic, worked on rounded angles. One surface melts into another as the mosaic sheet creeps from wall, arch, and pendentive up to the dome. The gold of the background is carried into the figures, thus unity of surface is always maintained.

In carving, Greek, rather than Roman precedent, was followed, due no doubt to the Greek origin of the artizans. It was executed in low relief, and effect was obtained by sinking portions only of the surfaces. In fact, the **drill** instead of the **chisel** was adopted by the Byzantine masons, and is responsible for the character of the carving (No. 60). The acanthus leaf, deeply channelled and adapted from Roman architecture, became more conventional, and has acute-pointed leaves, drilled at the several springings of the teeth with deep holes.

The great characteristic of Byzantine ornament as compared with the classical, is that the pattern is **incised** instead of seeming to be **applied.** The surface always remained flat, the pattern being cut into it without breaking its outline.

Grecian and Asiatic feeling strongly pervades Byzantine ornamentation. This is accounted for by the fact that

# BYZANTINE CAPITALS




# BYZANTINE ORNAMENT

Constantinople was a Greek city, and in close contact with the East.

*Note.*—A good general idea of the exterior of a church in this style is to be gained from the Greek Church in the Moscow Road, Bayswater, erected by Gilbert Scott. The mosaics and casts in the South Kensington Museum should also be inspected.

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62.

# ROMANESQUE ARCHITECTURE IN EUROPE.

## GENERAL INTRODUCTION.[1]

### 1. INFLUENCES.

i. **Geographical.**—The style which grew up on the decay of the Roman empire, and which we know as Romanesque, was carried on throughout practically the whole of the Western empire—that is, in those countries which had been directly under the rule of Rome. The position of each country will be slightly touched upon under its own heading. The influence of Byzantine art brought from Byzantium through Ravenna also influenced the Italian Romanesque in Lombardy and Europe generally.

[1] Before treating of the development of the style peculiar to each country, a general outline sketch is given.

**ii. Geological.**—In these early times a rough use of the material at hand characterizes the style in each country, and will be referred to under the same.

**iii. Climate.**—Local styles were favoured by the variations of climate north and south of the Alps. Refer to Rome in Classic and France and Germany in Romanesque sections.

**iv. Religion.**—The Christian Church was striving to extend its boundaries in Northern Europe. It represented the civilizing and educating agency of the age. The erection of a church was often the foundation of a city. The monastic communities, with the encouragement and aid of Charlemagne, came into existence. The papacy had been rising to great power and influence, and, directed with skill, it rivalled or controlled such civil government as existed. As East and West drifted apart their architecture developed on opposing lines. Work done in Western Europe under Eastern influence has to be classed as Byzantine. The West looked to Rome at first until each country developed its own style. Religious enthusiasm prevailed, and was manifested in magnificent edifices. As evidencing the same zeal we should note that when the Turks overran Palestine, the loss of the Holy Places brought on the long warfare between the Christians of the West and the Mahometans of the East known as the Crusades (1096–1270).

Until the middle of the twelfth century science, letters, art and enlightenment generally were the monopoly of religious bodies, and pupils of monks afterwards became the designers of many of the great Gothic Cathedrals.

The feudal rank of bishops and abbots made them in some sense military chiefs, occasionally taking the field in person. Schools attached to certain monasteries discharged to some extent the functions of universities, as those at St. Gall, Tours, and Rheims.

The aid rendered by monastic institutions to architecture was therefore important. Down to the thirteenth century, architecture was practised largely by the clergy and came to be regarded as a sacred science, as stated by Albert Lenoir in "l'Architecture Monastique." Dr. Jessop's "Daily Life of an English Monastery" is interesting as showing the life led by the monks, and may be studied with advantage. (For the typical plan of a monastery see page 192).

Among the chief monastic orders were the following:—

(1.) The *Benedictine order*, founded in the South of Italy in the sixth century by St. Benedict, by whose decree architecture, painting, mosaic and all branches of art were taught. All the older monasteries in England belonged to this order, Canterbury being the chief establishment.

The usual arrangement consisted of a square cloister having on one side a church of cruciform plan with aisles, the transept forming a part of one side of the cloisters. The refectory was usually parallel to the nave, on the opposite side of the cloister. The dormitory was generally placed on another side with a staircase in connection with the church for night services.

The manuscript plan existing in the Library of the monastery of St. Gall, in Switzerland, is interesting as showing what was considered a typical plan of the buildings of this order.

(2.) The *Cluniac order* was founded in A.D. 909, the celebrated abbey at Cluny being the headquarters. The plan was especially notable for the double transept, a feature which was adopted in many English Cathedrals, as at Lincoln (No. 89 E) and Salisbury (No. 120 A).

(3.) The *Cistercian order* was founded in A.D. 1098, at Citeaux, in Burgundy. In plan, the typical church was divided into three parts transversely by screens, walls, or steps. There were frequently no aisles. The transepts were short, as also was the eastern arm of the cross, and the choir extended westward of the transepts. There was an absence of towers and painted glass. The influence of the Cistercian foundation extended to various countries of Europe. In England, Furness, Fountains, Roche, and Kirkstall Abbeys were the most important.

(4.) The *Augustinian order* differed little from the Benedictine. They were introduced into England in A.D. 1105, and Bristol, Carlisle, and Oxford Cathedrals were founded by this order.

(5.) The *Premonstratensian order* was instituted at Prémontré, in Picardy, in A.D. 1119.

(6.) The *Carthusian order* was founded by St. Bruno, about A.D. 1080, the chief French establishment being the *Grande Chartreuse*, near Grenoble, others being Vauvert, Clermont in Auvergne, Villefranche de Rouergue, and Montrieux. They preferred two churches, one for the monks and the other for the people. In plan the typical feature was the great rectangular cloister, surrounded by an arcade on which the monks' cells opened, each being self-contained and with its own garden. By the rules of the order, speech was interdicted, and the Carthusian must work, eat and drink in solitude. Such a regime explains the extreme severity of their architecture.

In Italy the establishments at Florence and the Certosa near Pavia were the most important.

(7.) The military orders included the *Knights Templars* and *Hospitallers*. The churches of the Templars were circular in plan, as witness the Temple Church, London, and those at Cambridge, Little Maplestead, and Northampton. It is

supposed they were erected in imitation of the Holy Sepulchre at Jerusalem.

(8.) The *Friars* were founded at a later period. Their churches were large, plain, and without aisles, being designed for preaching purposes.

(*a.*) The *Dominicans* (preaching or black Friars) were founded by St. Dominic about A.D. 1170, and later held a high place in Christian art, as witness Fra Angelico.

(*b.*) The *Franciscan* (mendicant or grey Friars) were founded by St. Francis of Assisi, in A.D. 1209, and were distinguished for intellectual capacity, Roger Bacon being one of the most distinguished members.

(*c.*) The *Carmelites* (or white Friars), who were driven out from Mount Carmel by the Saracens, in A.D. 1098.

(*d.*) The *Austin Friars* (or Hermits).

(*e.*) *Friars of the Holy Trinity*, instituted in A.D. 1197.

(*f.*) *Crutched* (*or crouched*) *Friars*, instituted in Bologna, in A.D. 1169.

(9.) The *Jesuits* were established in order to crush the Reformation, and came to England in A.D. 1538.

**v. Social and Political.**—The system of feudal tenure, or the holding of land on condition of military service, was growing up, and caused important changes in the social and political organization of states. While through its operation the class of actual slaves died out, still the poorer freemen gradually came to be serfs, bound to the land and passing with it, on a change of ownership.

The growth of the towns as civilization advanced is noticeable, and the privileges which they acquired, amounting almost to independence, rapidly gave them importance.

Constant warfare rendered the condition of the people during this period barbarous, and skill in craftsmanship was at the lowest ebb. Christianity and civilization gradually extended from southern to western Europe. The clergy—the scholars of the period—directed the building of the churches, while the influence of the freemasons produced important results.

**vi. Historical.**—In the year A.D. 799 the Roman Empire in the West practically passed from the hands of the Romans, by the election of the first Frankish King, Charlemagne, whose election is a convenient date to mark the end of the Roman Empire as such. Till the time of Charlemagne very little building was done, but he in a great measure restored the arts and civilization to Western Europe, before his death in A.D. 814.

After the year A.D. 1000, buildings sprang up in all parts, with many local peculiarities, which we shall notice under each country;

but the change was, as ever, slow; traditional forms were firstly transformed in general design and detail, and then new forms created.

Nearly all the nations of Europe had at this time come into existence; the states of Europe, including France, Germany, Spain, etc., were growing up, and tending to set aside the rule of the Holy Roman Empire, which now had become only a title. In northern Europe, Denmark, Sweden, and Norway were distinct kingdoms, and England had become welded into one by the Norman kings at the end of the eleventh century.

## 2. ARCHITECTURAL CHARACTER.

The term **Romanesque** may be said to include all those phases of architecture which were more or less based on Roman work, and which were being carried out, in a rough and ready way, in various parts of Europe, from the departure of the Romans up to the introduction of the pointed arch in the thirteenth century. All Western Europe had a common type based on Roman architecture.

The general architectural character is sober and dignified, while picturesqueness is obtained by the grouping of the towers, and projection of the transepts and choir.

As helping towards the appreciation of the character of Romanesque architecture let us suppose an ancient civilization of vast extent, devoid of physical force, and recognisable only by the multitude of its monuments, some intact, others injured, partially destroyed, all unguarded, and most of them disused—a calamity which happens in due course to every great nation or group of peoples. Then, and in no poetical sense, but sadly prosaic in its realities, "all save the spirit of man is divine." But slowly, and with many a contortion, many a yawn, this same man throws off the sleep of ages and awakens to a sense of the treasure he possesses, of the wants he begins to understand, of the means to the ends he would attain. In his midst are ruins of vast edifices, some still standing among heaps of stones hewn and carved, of sculptured capitals and friezes, of monoliths of porphyry and marble, while his own shelter affords him little protection either in cold or sunny weather. What happens? As time goes on he gathers up the smaller fragments and arranges them perhaps upon the foundations, still intact, of an ancient building, and as he gradually acquires a knowledge of the uses to which he might apply this and that fragment, he insensibly produces something that is now dubbed Romanesque. This explains the birth of

Romanesque, for on the collapse of the Western Roman empire, the quarry of the ruins of ancient buildings largely influenced the work done, both in construction and decorative treatment, in that the earlier buildings of the period were often built from the remains of ancient Roman buildings in the vicinity. For this reason, although extremely interesting from an archæological point of view, these earlier buildings can hardly have, in the architect's mind at least, the value for study which a new manner in architecture arising from new structural conditions is certain to possess. In the course of time, however, a new style was evolved, for, putting aside the spasmodic efforts, we find that the period of the tenth to the twelfth centuries is remarkable for the tentative employment of a new manner in construction and of a new material. The first is the principle of equilibrium which succeeds to that of inert stability as used by the Romans, and the second is the employment of dressed stonework in comparatively small pieces, and connected with mortar beds of considerable thickness. This was a method not before attempted, because the materials in use up to that time had not demanded it. By this new system of employment in materials, the whole current of architecture was turned to a constructive system which should answer to its needs, and which, after many tentative experiments, was to lead to the next glorious period of our subject—the thirteenth century—in which elasticity of structure is joined to the principle of equilibrium.

In Italy there were various early Christian edifices erected at Ravenna from the fifth to the seventh centuries. Ravenna was the principal city in Italy during this period, being the seat of the Exarch or representative of the Byzantine Emperor in the western part of his dominions. These buildings partake, naturally, of the elements of the then fully developed Byzantine style, in the same way as St. Mark's, Venice, the prototype of St. Front at Perigueux, was the result of the close connexion of these centres with the trade and commerce of the East (No. 57).

Turning to France, we find that in Aquitania and the West of France during the eleventh and twelfth centuries the old traditional basilican plan was preferred and adhered to (except at St. Front); but the dome raised on pendentives became the common kind of vaulting, in conjunction with the single or aisleless nave. It should be noted, however, that the use of the Pointed arch occurred in the South of France sooner than in the North, and it is considered by some, with apparently little foundation, that it was derived from contact with the Saracens, who invaded this portion of France from 719–732. Further, the development of monasteries in the eleventh century gave a great impulse to civilization and

agriculture, and exercised considerable influence on architecture. Provence was, moreover, in the twelfth and thirteenth centuries the chief centre of the growing traffic from the East, and the highway by which artistic and other products of the Levant were dispersed through France and the North of Europe. Similarly, the development from Roman to Gothic art was accomplished by the ordeal of the destructive, though purifying dissolution of the Dark Ages, whence the true spirit of Roman construction emerged, cleared to a great extent of the extraneous elements with which it had been so long encrusted. Up to the end of the twelfth century the Provençal architects had led the way, but at this period the lay architects of the North, seizing on the Provençal principle of the Pointed arch, soon developed from it the magnificent Gothic system of the perfected architecture of the thirteenth century. For Romanesque in England see page 230.

## Romanesque Vaulting.

The Roman system of plain cross vaulting was used in Europe up to the twelfth century, when it began to be superseded by the "groin-rib" type of vaulting, in which a framework of ribs supported vaulting surfaces of thinner stone, known as "severies," or "in-filling." This method introduced a new principle in vaulting, *viz.*, designing the profile of the groin ribs and leaving the form of the vaulting surfaces to adapt themselves to them, whereas in Roman architecture the vaulting surface was first settled, and the profile of the groins followed as a matter of necessity. It was therefore necessary for the Romanesque architects to find the profile of the ribs, and especially that of the diagonal rib, which had previously been settled without design, as mentioned above, by the intersection of the two vaulting surfaces meeting at right angles. If the vaulting surfaces were semi-cylindrical the diagonal groin was of necessity a semi-ellipse, but the use of ordinates as shown in No. 83 E does not appear to have been employed by the Romanesque architects, who surmounted the difficulty arising from the difference of span of the diagonal and transverse ribs as follows:—(*a.*) On the Continent, especially in Germany and France, the vaulting ribs were usually portions of circular curves of similar curvature starting from the same level, thus the diagonal rib, having the longest span, rose to a greater height than the transverse and longitudinal ribs (No. 84, D). The panelling was then filled in on the top of these ribs, and in consequence the structure was highly domical. (*b.*) In England, however, where the vaults were generally constructed with level ridges, this domical form was not used, the difference in height between the

diagonal and the transverse ribs being equalized by stilting the latter (No. 84 B, D, G) or else by forming the diagonal rib as a segment of a circle, the longitudinal and transverse ribs becoming semicircular (No. 84 $D^2$). In vaulting an oblong compartment the difference between the heights of the diagonal and wall ribs was still greater and produced an awkward waving line of the groins on plan (Nos. 83 B and 84 B, C).

In the vaulting of the naves of the Romanesque churches in Germany, as at Worms (No. 77 G), Mayence and Spires; and in France, as in the Abbaye-aux-Hommes (No. 84 E, F), Abbaye-aux-Dames at Caen, and at Nôtre Dame, Paris (No. 118); and in England, as at Canterbury, the difficulty of spanning oblong compartments was surmounted by including two of these compartments in one square bay of vaulting, each main bay corresponding with two compartments of the side aisles, each compartment of the side aisles being vaulted in squares (Nos. 66 A, B, E and 77). In some instances the intermediate pier was carried up as a vaulting shaft and formed the vaulting compartment into six parts on plan, which was then known as "sexpartite" (six part) vaulting (Nos. 72 C, 77 D and 84 F). The weight of the vaulting in this case was therefore supported by alternate piers, which were accordingly strengthened (Nos. 77 C and 118 D). During the following centuries this principle of rib design became more complex by the multiplication of the framework of ribs described under Gothic vaulting (page 202). It will also be found that all these difficulties of accommodating the heights of ribs of different spans, especially in oblong compartments, were surmounted by the introduction of the pointed arch (No. 83 D and 84 D).

## 3. EXAMPLES (refer to each country).

## 4. COMPARATIVE.

A. **Plans.**—In church architecture further developments from the type of the Early Christian basilica took place. Charlemagne gathered around him artists and skilled workmen, and calling architecture out of its sleep, took the Roman basilica as a model for the new churches. Transepts were usually added, and the chancel prolonged further east than in the basilicas, the church partaking more and more of a fully-developed cross on plan, as at S. Michele at Pavia (Nos. 66 and 67). The transepts were the same breadth as the nave, which was usually twice the width of

the aisles. The choir was raised considerably by steps; under it was the crypt, where the saints and martyrs were buried, this portion being supported on cross vaults as at S. Miniato, Florence (No. 65). In later periods the aisles were continued round the choir.

The cloisters in connection with the churches are often of great beauty and elaborately carved.

The towers are special features, and of great prominence in the design, as at the Church of the Apostles at Cologne (Nos. 76 and 77 C). They are either square, octagonal, or circular, with well-marked storeys, having windows to each. The west and east end, and the crossing of nave and transepts are all favourite positions.

B. **Walls.**—Roman work and precedent, of course, influenced all constructive art in Europe, although technical skill was at a very low ebb during this period. Walls were in general coarsely built. In the exterior, buttresses are formed as pilaster strips of slight projection, connected at the top by horizontal mouldings, or by a row of semicircular arches resting on a corbel table projecting from the wall. Semicircular arches, resting on rudely formed capitals, also occur. Other peculiarities are noted under each country.

C. **Openings.**—The door and window openings are very characteristic. The principle upon which the jambs were formed was in receding planes, or rectangular recesses, known as "orders," in which were placed circular columns or shafts. The arches followed the same method, being built in concentric rings (No. 66 F, H, J). A continuous abacus often runs over these columns, and the profile of the jamb is carried round the semicircular portion of the arch, in southern examples.

The principal doorways are in general placed in the transepts.

*Note.*—The characteristic rose, or wheel, window occurred over the principal door of the church in the west front, as at Iffley Church, Oxon (No. 107). Also in Southern Italian examples, as at Palermo.

D. **Roofs.**—The introduction of vaulting, in the second half of the eleventh century, was a great advance in construction over the flat wooden roof.

The form of arch universally employed was semicircular (No. 66 A), often raised above the semicircle, *i.e.*, stilted (No. 84 G).

In early buildings rib mouldings were not used in the vaulting. When introduced, about 1100 A.D., these ribs were at first plain, and afterwards moulded in a simple manner (No. 66). Intersecting barrel vaults (No. 84 G) are common, and the difficulty in constructing these in oblong bays led to the use of pointed



63. The Baptistery, Cathedral, and Leaning Tower at Pisa.
With Campo Santo in the background.





arches in later times. When the crossing is crowned by an octagonal dome, the angles are usually carried on squinch arches (Nos. 66 and 77). The Romanesque architects used "flying buttresses" under the aisle roof, in the case where the thrust of a vaulted roof had to be met (Nos. 66 and 72). It was left for the Gothic architects of the thirteenth century to place them above the aisle roof and weight them with pinnacles.

E. **Columns.**—The shafts of the columns have a variety of treatment; flutings—vertical, spiral, or in trellis work form—are used (No. 70 B). The whole shaft is sometimes covered with sculptured ornaments. In earlier examples forms of the ancient Corinthian or Ionic caps occur—as in the third column from the right in St. John's Chapel, Tower of London (No. 104), where classic influence is apparent. Also see No. 70 J, K, L, M.

The capital in later times is often of a cushion (cubiform) shape, as in St. John's Chapel in the Tower of London (No. 104), with lower corners rounded off and no carving. It also becomes richly carved and scolloped.

F. **Mouldings** are often carved elaborately, as will be seen in noticing English Romanesque or Norman architecture (No. 108).

The abacus over the capital (No. 70 J, M) is always distinctive in form; it is higher, but projects less than in the classical style, and is moulded with alternate fillets and cavetti. The base to the column (No. 112) is generally an adaptation of the old classical form, or Attic base, resting on a square plinth, at the angles of which flowers or animals are occasionally carved to fill up the triangular part. The lower moulding often overhangs the plinth.

G. **Ornament.**—In regard to carving and ornaments, notice that many types are borrowed from the vegetable and animal kingdom, and treated in a conventional way, often but rudely carved. For interiors fresco is more common than mosaic, which required great technical skill. Early stained glass is influenced by Ro[illegible]

*The principal characteristics of the style as a [illegible], of climate, of [illegible] looked to for the [illegible] these will [illegible]*

# ITALIAN ROMANESQUE.[1]

## CENTRAL ITALY.

"In Middle Rome there was in stone working
The Church of Mary painted royally
The chapels of it were some two or three
In each of them her tabernacle was
And a wide window of six feet in glass
Coloured with all her works in red and gold."

### 1. INFLUENCES.

**i. Geographical.** The boundaries of Central Italy, in this section, would include Florence and Pisa on the north and west, and extend to Naples on the south. Pisa, by position, was a maritime power, while Florence lay on the great route from south to north, commanding the passage of the Arno.

**ii. Geological.**—Tuscany possesses greater mineral wealth than any other part of Italy. Building stone was abundant. The ordinary building materials of Rome were bricks, volcanic stone (tufa or peperino) on the spot, and Travertine stone from Tivoli, a few miles off. Marble was obtained from Carrara, or Paros and the other Greek isles.

**iii. Climate.**—(See under Rome, page 74.)

**iv. Religion.**—It was during this period that, although the Popes had no temporal dominions, they began to make their power felt in civil government, and the disputes with the emperors began. Gregory VII. rules that the clergy may not marry, and that no temporal prince shall bestow any ecclesiastical benefice. The struggles of the Guelphs and Ghibellines (see hereafter) are in large part the result.

**v. Social and Political.**—In Italy an artistic movement took place in the eleventh century, in which architecture had

[1] The style is divided into three—central, north, and south. The comparative table of the three together is given on page 163.



64. Romanesque PISA CATHEDRAL. - Tuscan 1000-1260 ad



arches in later times. When the crossing is crowned by an octagonal dome, the angles are usually carried on squinch arches (Nos. 66 and 77). The Romanesque architects used "flying buttresses" under the aisle roof, in the case where the thrust of a vaulted roof had to be met (Nos. 66 and 72). It was left for the Gothic architects of the thirteenth century to place them above the aisle roof and weight them with pinnacles.

E. **Columns.**—The shafts of the columns have a variety of treatment; flutings—vertical, spiral, or in trellis work form—are used (No. 70 B). The whole shaft is sometimes covered with sculptured ornaments. In earlier examples forms of the ancient Corinthian or Ionic caps occur—as in the third column from the right in St. John's Chapel, Tower of London (No. 104), where classic influence is apparent. Also see No. 70 J, K, L, M.

The capital in later times is often of a cushion (cubiform) shape, as in St. John's Chapel in the Tower of London (No. 104), with lower corners rounded off and no carving. It also becomes richly carved and scolloped.

F. **Mouldings** are often carved elaborately, as will be seen in noticing English Romanesque or Norman architecture (No. 108).

The abacus over the capital (No. 70 J, M) is always distinctive in form; it is higher, but projects less than in the classical style, and is moulded with alternate fillets and cavetti. The base to the column (No. 112) is generally an adaptation of the old classical form, or Attic base, resting on a square plinth, at the angles of which flowers or animals are occasionally carved to fill up the triangular part. The lower moulding often overhangs the plinth.

G. **Ornament.**—In regard to carving and ornaments, notice that many types are borrowed from the vegetable and animal kingdom, and treated in a conventional way, often but rudely carved. For interiors fresco is more common than mosaic, which required great technical skill. Early stained glass is influenced by Byzantine mosaic.

*Note.—**The above are the principal characteristics of the style as a whole. Local influences of taste, of climate, of geographical and geological formations must be looked to for the different characteristics in each country. These will now be briefly alluded to.***

end, which is an advance on the Basilica plan. Over the crossing, intersection of nave and transepts, is an elliptical dome of later date. The side aisles, externally, have blind arches running all round, built in stripes of red and white marble.

The west façade has small open pillar arcades, one above the other, producing a fine effect (No. 63).

But it will be seen that the architectural character of the church has not the promise of logical development into a style that a northern example possesses. It depends for artistic effect upon the beauty and interest of its ornamental features.

The **Leaning Tower** at Pisa (A.D. 1172), which is circular on plan, consists of storeys of arcades one above the other (No. 63). The tower leans about one in twelve, and is capped by a small circular tower, 27 feet in height, in which are placed the bells. Total height is 183 feet. The foundations gave way during the building, and the cornice overhangs the base by 13 feet.

The **Baptistery** at Pisa (No. 63), designed by Dioti Salvi in A.D. 1153, is circular on plan, 129 feet in diameter. It is also entirely of marble, surrounded on the lower storey by half columns, connected by semicircular arches; above is a gallery in two heights, supported on smaller detached shafts. It was not completed till A.D. 1278, and has Gothic additions of the fourteenth century, in consequence of which it is not easy to ascertain what the original external design really was. Compare with the church of S. Donato, at Zara in Dalmatia, ninth century.

The dome is 60 feet in diameter, and is supported on four piers and eight columns. It is a cone in shape, the top appears above the external dome in a rather singular way. If it had an internal cupola it would resemble the scheme of construction at St. Paul's. (See No. 212).

**San Michele, Lucca** (A.D. 1188, façade 1288) has considerable similarity to the Pisan work, the reason being that this city belonged to Pisa when most of the churches were erected.

**St. Martino, Lucca** (A.D. 1060–1070, façade 1204) has an elegant triforium of traceried arches added in the fourteenth century.

**Pistoia Cathedral**, twelfth century A.D., resembles these churches.

**Rome.** In the Romanesque period, *i.e.*, from 600–1100, while the rest of Europe was slowly developing towards the Gothic style in architecture, Rome was continuing to use the remains of classic buildings, such as columns and other features in any new buildings.

The **Cloisters of S. John Lateran** (twelfth century) has small twisted columns inlaid with mosaic in patterns of great



65. S. Miniato, Florence. 1000 ROMANESQUE
TUSCAN



beauty, evidencing the patient skill of the workmen; also shown in S. Paul without the walls (No. 70 B). The cloisters are formed in square bays, the vault arches inclosing the arcades, in groups of five or more openings.

**Towers.** In Rome during this period a series of towers was erected, which may be regarded as prototypes of the mediæval towers and spires. Their origin is not clear, as the custom of bell ringing was not then in existence.

**Florence. S. Miniato** (No. 65) is a leading example of this central Italian style. The principal features are the division of the church into three main compartments longitudinally; and the raised eastern portion, under which is a crypt, open to the nave. The division of the church by piers seems as a prelude to the idea of vaulting in compartments, and is an evident departure from the basilica type of long unbroken ranges of columns or arcades. The marble panelling, and banding in black and white marble of exterior and interior, are to be noticed; it was carried to a further extent in the Gothic period.

Very notable is the open timber roof with its decoration in bright colouring of gold, green, blue and red.

For the Comparative table of Italian Romanesque, see at the end of the sections (page 163).

## NORTH ITALY.

### 1. INFLUENCES.

**i. Geographical.**—Milan, the capital of Lombardy, has always had a high degree of prosperity, on account of its favourable situation in the centre of that state, and being near the beginning of several of the Alpine passes.

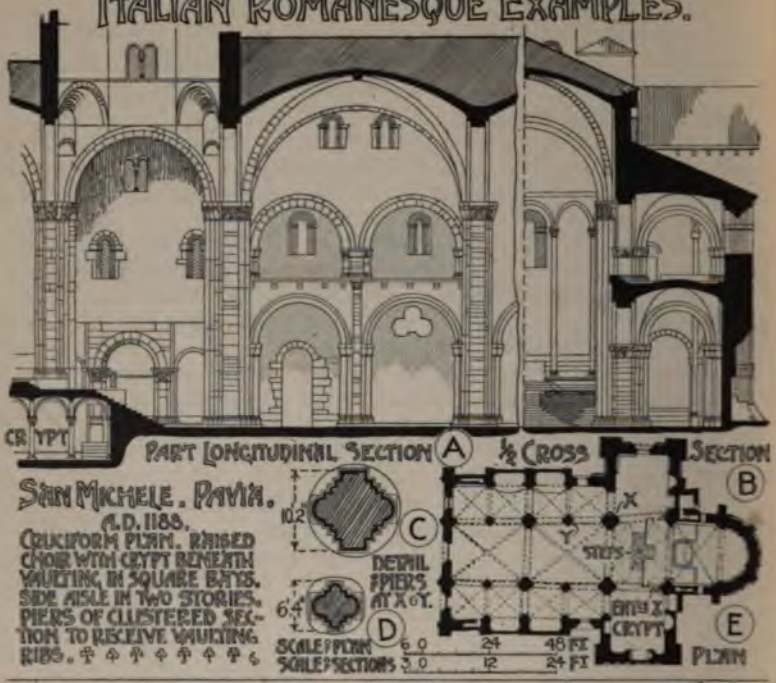
The city is surrounded by rich plains. The cultivation of the mulberry (for the silkworm), and the vine, adds to the general prosperity of the district.

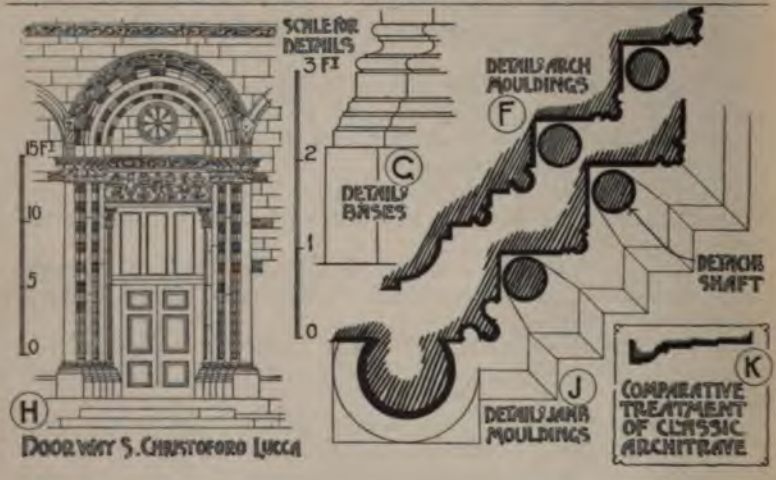
Ravenna and Venice as trade connecting links with the Eastern Empire, reflect the culture and architectural forms derived therefrom.

**ii. Geological.**—Brick is the great building material of the plains of Lombardy, and the local architecture shows the influence of this material.

**iii. Climate.**—North Italy has a climate more resembling that of the continent of Europe, *i.e.*, climate of extremes. Milan is near enough to the Alps to experience cold in winter, while in summer the heat is often excessive.

# ITALIAN ROMANESQUE EXAMPLES.





67. S. Michele, Pavia. Lombard Romanesque
1024-1200



**iv. Religion.**—At the end of the fourth century, Theodosius, the great emperor, had been forced to do penance on account of a massacre in Thessalonica, St. Ambrose closing the doors of the church against him. This is an instance of the great power the church had acquired. St. Ambrose's fame and influence maintained the Ambrosian rite, which differed in some points of ritual, as in the non use of side altars, etc. (See under Milan Cathedral, page 287.)

**v. Social and Political.**—The devastating wars in the North Italian plains led to the gradual rise of the settlement of Venice, where the first form of government was republican. An oligarchy in which a Duke, or Doge, was invested with supreme authority gradually grew up. Italy itself consisted of a number of separate cities which were independent commonwealths.

**vi. Historical.**—Venice from the first kept up a close alliance with Constantinople, by means of which the naval importance, and commerce, of the little state increased continually. Especially after the eleventh century, by which time their commercial relations gradually extended to the Black Sea, and all the coast of the Mediterranean; while the outlying possessions included Dalmatia, Croatia, and Istria. The invading barbarians who occupied the valleys of the Rhine and Po pursued a similar development in spite of the intervening Alps. Milan was as much German as Italian. In Italy, the old population, that had to be absorbed, eventually caused barbarian influence to wane, but until this had come to pass little building was done. The eleventh and twelfth centuries were the great building epoch in Lombardy.

## 2. ARCHITECTURAL CHARACTER.

| NORTH ITALIAN. | CENTRAL ITALIAN. |
|---|---|
| Galleries restricted to top of gables and of apses. The character is more that of stonework than marble, and brick is also much used. Wide, flat, and severe façades are typical, covering the whole church, without marking in any way the difference of nave and aisles. A rose window and a porch resting on lions are often the chief relief (No. 68). Detail shows the tendencies that led to Gothic. In sculpture, scenes as of hunting, etc., reflecting the life of the northern invaders are common, | Façades covered with galleries (No. 63). Marble facing carried to such an extent as to almost form a style in marble. Basilica type closely adhered to. Attention has already been drawn to this fact, from which it would appear that beauty and delicacy of detail were preferred to the invention of fresh forms produced by a new system of construction. Detail affected by classic remains and traditions, which were utilized in the production of carving and ornament of great refinement. At |

NORTH ITALIAN.

and in these a grotesque element is prominent.

The churches were nearly all vaulted, but have basilican plans. Side aisles are often in two storeys, and the clerestory is omitted, the walls between the side chapels forming buttresses.

CENTRAL ITALIAN.

Pisa ancient sarcophagi richly sculptured with figures existed, by whose study the Pisani were influenced.

## 3. EXAMPLES.

**St. Antonio, Piacenza,** A.D. 1122, and **St. Ambrogio, Milan,** twelfth century A.D., may be mentioned as good examples.

**St. Michele,** Pavia (A.D. 1188), is typical, it is vaulted in square bays, has side aisles in two storeys, and piers of clustered section (Nos. 66 and 67).

**San Zenone** at Verona is an important example (No. 68). Notice the arcaded corbels, under the slope of gable, which are so characteristic of the work in this district, also the great western rose, or wheel, window, and the projecting porch of the main doorway, with columns supporting arches, and resting on the backs of crouching lions (No. 70 G).

The origin of the arcaded galleries, as seen in many of the more important churches in the period (No. 67), is interesting, as illustrating how such architectural features have had, originally, a constructive meaning—thus, when a wooden roof is placed over a circular vault, the external walls must be carried up to the springing of the vault, but are not necessary above; the wooden roof only having to be supported. This portion was therefore arcaded, the arches running back on to the receding extrados of the vault in the case of the apses, giving a deep shadow in an appropriate position (Nos. 76 and 77 B). This arcading, from being used merely in this position, came to be employed, in every possible part of the building, as a decorative feature, so that it even entirely covered the western façade.

*Note.*—Similarly in late Gothic in England; the battlemented parapet, primarily of use for defence at the top of the building, eventually was employed as a decorative feature on window transoms, etc.

At **Venice** still remain some palaces of this period, with the characteristic cubiform capital, carrying semicircular arches which are often stilted.

The **Palazzi Farsetti** and **Loredan** and the great warehouse on the Grand Canal used in the eastern trade, and hence called the **Fondaco dei Turchi,** are well-known examples.



68. S. Zenone, Verona.

Showing detached Campanile.



The **towers** (campanile = bell tower) are an important feature of the period. They are not joined structurally with the church to which they belonged, as in England, France, and Germany, but are placed at some little distance, and sometimes connected by cloisters.

In plan they are always square, and have no projecting buttresses, as on this side of the Alps. They are treated as plainly as possible, without breaks, and with only sufficient windows to admit light to the staircase, or sloping way, inside; the windows increase in number from one in the lowest storey to five or more in the uppermost storey, making this stage into what is practically an open loggia, and the whole is generally crowned with a pyramidal shaped roof.

The Campanile at *San Zenone at Verona* is typical (No. 68).

These campanili occur in most of the north Italian towns, and in many cases are more civic monuments than integral portions of the churches near which they are situated, as at St. Mark's at Venice. In these cases they were erected as symbols of power, or to commemorate certain events, being similar in purpose to the civic towers of Belgium (page 270).

For comparative table of Italian Romanesque, see at the end of the sections (page 163).

## SOUTHERN ITALY AND SICILY.

"Therein be neither stones nor sticks,
Neither red nor white bricks;
But for cubits five or six,
There is most goodly sardonyx,
And amber laid in rows."

### 1. INFLUENCES.

**i. Geographical.**—Being situated centrally in the Mediterranean sea, and being of triangular form, Sicily presents one side to Greece, another to Italy, and the third to Africa. Its history is a record of the successive influence of the conquests of each of these three powers.

**ii. Geological.**—The deposits of sulphur contributed to the wealth and prosperity of the island. The mountainous character of the island affords an abundant supply of a calcareous and shelly limestone. The influence of the geological formation of the island on its architectural character should be noted.

**iii. Climate.**—The climate of South Italy and Sicily is almost sub-tropical. Palms grow in the open air, and the orange and lemon groves near Palermo are celebrated. On the south-eastern

coast of Italy, the towns have the general characteristics of Oriental cities, such as flat roofs, etc.

**iv. Religion.**—In Sicilian work, Mahometan influence is seen in the intricate geometrical patterns which cover the façades. These they invented, partly owing to the fact that their religion forbade the representation of the human figure, as tending to idolatry.

**v. Social and Political.**—The Mahometans introduced into Sicily valuable commercial products, as grain, cotton, etc. Their civilization was, however, considerably aided by the previous Byzantine influences. Southern Italy has always maintained a close connection with Sicily, and has yet to be fully explored for traces of its architectural development.

**vi. Historical.**— In A.D. 827 the Mahometans land in Sicily, and gradually overrun the whole island. The latter part of the tenth century is the most prosperous period of their sway. Sanguinary struggles, amongst certain sects, lead to the insurrection of several cities, and hasten the downfall of the Mahometan dynasty. From 1061-1090 the Normans, under Robert and Roger de Hauteville, conquer the island, and a descendant of Roger is crowned at Palermo, 1130. Sicily prospers, and her fleet defeats the Arabs and Greeks. Civil wars as to the succession lead to the island passing in 1268 to Louis of Anjou.

## 2. ARCHITECTURAL CHARACTER.

We can trace the change from the *Byzantine* to the *Mahometan* dominion, and from the latter to the supremacy of the *Norman* in the eleventh century, *e.g.*, the Byzantine influence is shown in the plan of certain churches, as in the Church of the Martorana at Palermo, where a square space is covered in by four free columns carrying a dome, and surrounding vaults.

Architecture develops considerably under the Norman rule by the erection of cathedrals, and a school of mosaic is maintained in the Royal Palace during this period.

The churches have either wooden roofs, or a Byzantine dome, but are hardly ever vaulted. Dark and light stone is used in courses externally, and rich mosaics, and coloured marbles, are employed as a facing internally. The architectural features of the interior, in the buildings of which the Cathedral of Monreale (No. 69) is the type, were subordinate to the mosaic decorations which clothe the walls.

## 3. EXAMPLES.

In Sicily the church at **Monreale** (begun 1174, No. 69), on the high ground at the back of Palermo, illustrates the mixed

Byzantine and Mahometan influence. In plan it resembles a Roman basilica, the aisles being continued to form apses at the east end, which is raised above the nave. The nave columns have well-carved capitals of Byzantine form, supporting pointed arches, which are square in section, and not in recessed planes as they would be in northern work. Pointed windows without tracery occur in the aisles. The walls are a background for mosaics in colour, representing scenes from biblical history, surrounded by arabesque borders. A dado, about 12 feet high, of slabs of white marble, is bordered by inlaid patterns in coloured porphyries. The open timber roofs, intricate in design, are decorated in colour in the Mahometan style. The interior is solemn and grand, the decoration is marked by severity, and by the employment of great richness in the material. Note the raised, oblong, crowning lantern, the early bronze doors, and rich cloisters.

The **Capella Palatina**, 1132, in the Royal Palace at Palermo, is the model of the above church, and though of small size, is unrivalled for richness of the effect of the mosaics. It has a richly treated ceiling of stalactite forms.

Other examples at Palermo are **S. Giovanni degli Eremiti** (1132) and the **Martorana Church** (1113–1143), which show the blending of Saracenic and Romanesque ideas.

**In South Italy** the churches are small in comparison with their northern contemporaries. The church of *San Nicolo at Bari* (1197) is a good example and typical of the class. The entrance front was always distinguished with a projecting porch, with the columns resting on lions' backs, and supporting a projecting roof, above which is the characteristic wheel-window. The detail especially of these buildings is refined and graceful, which may be due to some extent to the Greek descent of the inhabitants. The crypts are a special feature, that at Otranto especially is to be noted for the numerous points of support, employed to carry the choir.

## 4. COMPARATIVE TABLE OF ITALIAN ROMANESQUE ARCHITECTURE IN CENTRAL, NORTH, AND SOUTH ITALY.

A. **Plans.**—The plans of most of the churches were substantially the same as the basilicas, more especially in Central Italy; in the north are some attempts at vaulting, in which modifications are introduced on the lines of German work; in the south, the low lanterns at the crossing, oblong in plan, are marked features, as at Monreale Cathedral (No. 69). The choir was occasionally

raised to admit of a crypt beneath, reached by steps from the nave. A number of circular examples were built mainly as baptisteries, and an atrium at Novara connects such an one to the cathedral; there is also a fine specimen of an atrium at S. Ambrogio, Milan. In the north the galleried apses seen in conjunction with the low arcaded octagonal lantern, usual at the crossing, constitute the charm of the style. Projecting porches are preferred to recessed doorways, and are bold open arched structures, often of two stories, resting on isolated columns, standing on huge semi-grotesque lions, having a symbolic character. Towers are detached, as at Piacenza and S. Zenone, Verona, being straight shafts without buttresses or spires. Such attempts at the latter as occur may be traced to German influence.

B. **Walls.**—The flat blank arcades of the northern style are developed by the Pisan (central) architects in their galleried façades. The west front, including the aisles, is carried up to a flat gable, with galleries following the rake, and other galleries carried across in bands. The northern façades are flatter, and sometimes have a large circular window to light the nave. In the south this feature is highly elaborated with wheel tracery, as in the churches at Palermo. Flank walls are decorated by flat pilaster strips, connected horizontally by small arches, springing from corbels (No. 70 C).

C. **Openings.**—In consequence of the bright climate the openings are small (No. 70 A), and opaque decoration was preferred to translucent. Window tracery is not developed. The wheel windows just described (No. 68) are only rudimentary in pattern, more attention being bestowed upon their decoration, as in the rich carving of the Palermo examples.

D. **Roofs.** Where round arched cross vaulting, or simple barrel vaults, are not employed, the timber roofs of the basilica style are used, and often are effectively decorated with colour. In the southern examples, domes rather than vaults were attempted, but timber roofs are the rule in Palermo and Monreale (No. 69), and owing to Mahometan influence, great richness in timber ceilings is attained.

The nave roofs of Italian churches continued to be constructed of wood with flat ceilings till the thirteenth century. Plain groined vaults of small span are common and are divided into compartments by flat bands, a practice which was continued in the Gothic period.

E. **Columns.**—Piers with half shafts are employed rather than columns, especially in the north, where vaulting was more in use; coupled and grouped shafts were, however, seldom properly developed in relation to the vaulting ribs. Buttressing was



69. MONREALE CATHEDRAL, SICILY.



obtained by the division walls of an outer range of chapels, more often than not unmarked on the exterior. In Central Italy, as at Toscanella, rude Corinthian columns carry a round arched arcade, above which the plain walls are pierced, by the small arched openings of the clerestory, while the roof is of the simple basilica type. No. 70 J, K, L, M, show a series of typical capitals.

F. **Mouldings.**—Flat bands are characteristic of northern work. Strings are formed by small connecting arches, running from one pilaster strip to another. Rude imitations of old classical detail are met with. Southern work is far superior in detail, possessing often good outline, grace, and elegance. Richness and elaboration are attempted in the doorways (No. 66 H, J).

G. **Ornament** (No. 70).—Rude grotesques of men and animals, vigorous hunting scenes, and incidents of daily life are found in northern sculpture (No. 70 E, F). In Central Italy greater elegance is displayed, and classic models were copied. The rows of apostles on the lintels of the doorways, as at Pistoia, are similar in treatment to Byzantine ivories.

In southern examples, bronze doors are a feature, as at Monreale Cathedral. Elaborate decoration in mosaic exists as in the Palermo churches and elsewhere (No. 70 H), and colour was the intention and object in the design of the interiors.

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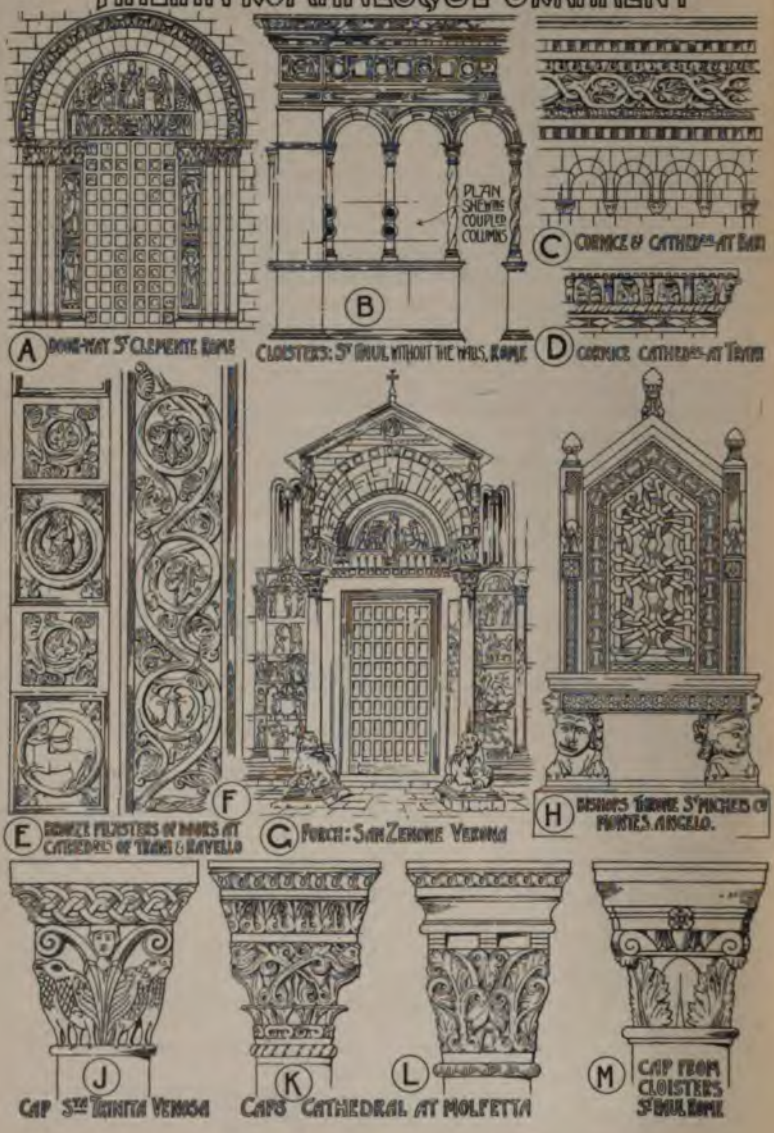
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# ITALIAN ROMANESQUE ORNAMENT



# FRENCH ROMANESQUE.

"How reverend is the face of this tall pile,
Whose ancient pillars rear their marble heads
To bear aloft its arched and ponderous roof,
By its own weight made steadfast and immoveable
Looking tranquillity. It strikes an awe
And terror on the aching sight."—CONGREVE.

## 1. INFLUENCES.

**i. Geographical.**—Relative position has had much to do with the architecture of each district in France. France is practically on the high road between the south and north of Europe. When Rome was a great power it was by way of Provence and the Rhone valley that civilization spread. Here it is that we find a strong classical element. The trade with Venice and the East, that passed *viâ* Périgueux, introduced into that district a masonic version of the Byzantine style.

**ii. Geological.**—France is exceedingly rich in building materials; most of the towns are built of stone, which is everywhere abundant. In the volcanic district of Auvergne walling is executed in a curious inlay of coloured material. The soft, fine-grained stone of Caen, used throughout Normandy, was also exported to England.

**iii. Climate.**—In France, three zones of climate are marked —(*a*) the northern slope resembles that of the south of England; (*b*) the western slope, the temperature of the Atlantic coasts being higher than the same latitudes further east, by reason of the Gulf Stream and warm S.W. winds; (*c*) the southern, or Mediterranean districts, have a climate and landscape almost African in its aspect.

**iv. Religion.**—Christianity, when introduced, took a strong hold in the Rhone Valley, Lyons contributing martyrs to the cause. In this southern district the most interesting event is the rise of the Cistercians, the severity of whose rules, as to church

building, was a reaction from the decorative character of the later Romanesque, as in façades of St. Gilles, and the cathedral of Arles. Attention was thus concentrated upon the means of producing grand, if severe, effects, and the change to the pointed style was promoted, by the effort to solve the problems of vaulting.

**v. Social and Political.**—Hugh Capet ascended the Frankish throne towards the close of the tenth century, Paris being made the capital of the kingdom. At this period the greater part of the country was held by independent lords, and the authority of the king extended little beyond Paris and Orleans. Lawlessness and bloodshed were rife throughout the century, hence architectural progress was impossible until a more settled state of society was established.

**vi. Historical.**—On the death of Charlemagne the Northmen had invaded northern France, thus giving the name to Normandy, their leader, Rollo, being the ancestor of the Norman kings of England. The conquest of England in 1066 marked the transference of the most vigorous of the Normans to England, Normandy becoming an English province until the time of King John. The hold, however, that they retained on their possessions in France was the cause of continual invasions and wars in the two countries, until the complete fusion of races in both was marked by the loss of the English possessions in France.

## 2. ARCHITECTURAL CHARACTER.

The southern style is strongest in rich decorative façades, and graceful cloisters. The style of Provence is a new version of old Roman features, here seeming to have acquired a fresh significance.

In Aquitania and Anjou it is the vast interiors in one span, supported by the massive walls of the recessed chapels, that impress us. In them we seem to see revived the great halls of the Roman Thermæ. In the north, however, the style, though rude, is the promising commencement of a new epoch, the first tentative essays of a new system. These interiors close set with pier and pillar, and heavily roofed with ponderous arching, are to lead to the fairy structures of the next three centuries, where matter is lost in the emotions expressed.

The buttresses were mainly internal, hence the plainness of the exteriors, which emphasized the richness of the West fronts.

The development of vaulting, especially along the Loire, took



71. The Abbaye-aux-Dames (la Trinité), Caen.
West Front.



place. Naves were covered with barrel vaults, whose thrust was resisted by half barrel vaults, covering two-storeyed aisles (No. 72 B), thus suppressing the clerestory, as at Nôtre Dame du Port at Clermont-Ferrand.

Groin ribs constructed independently and supporting the infilling powerfully influenced the character of vaulting.

## 3. EXAMPLES.

France exhibits several varieties of the Romanesque style, in which different peculiarities are traceable. For this reason it may be divided into provinces, the main dividing line being the Loire.

The influence of Roman remains was naturally greatest in the parts where they more particularly occur, as at Nîmes, Arles, Orange, etc., in the Rhone Valley.

In **Aquitania** two distinct styles occur: the first is the round-arched tunnel-vaulted style, of which St. Sernin at Toulouse is an example; and the second has domes spheroidal in shape elongated upwards and supported on pointed arches, indicating an eastern influence; as exemplified in *St. Front, Périgueux* (A.D. 1120) (No. 57), which had a large trade with Byzantium. This church may be described as a copy in stone of St. Mark's, Venice. The arches supporting the domes were, however, pointed (they have in the last few years been changed to semi-circular). St. Front acted as a prototype of churches with cupolas in France. Attached to the church is a magnificent campanile in stone, consisting of a square shaft, surmounted by a circular ring of columns, carrying a conical dome.

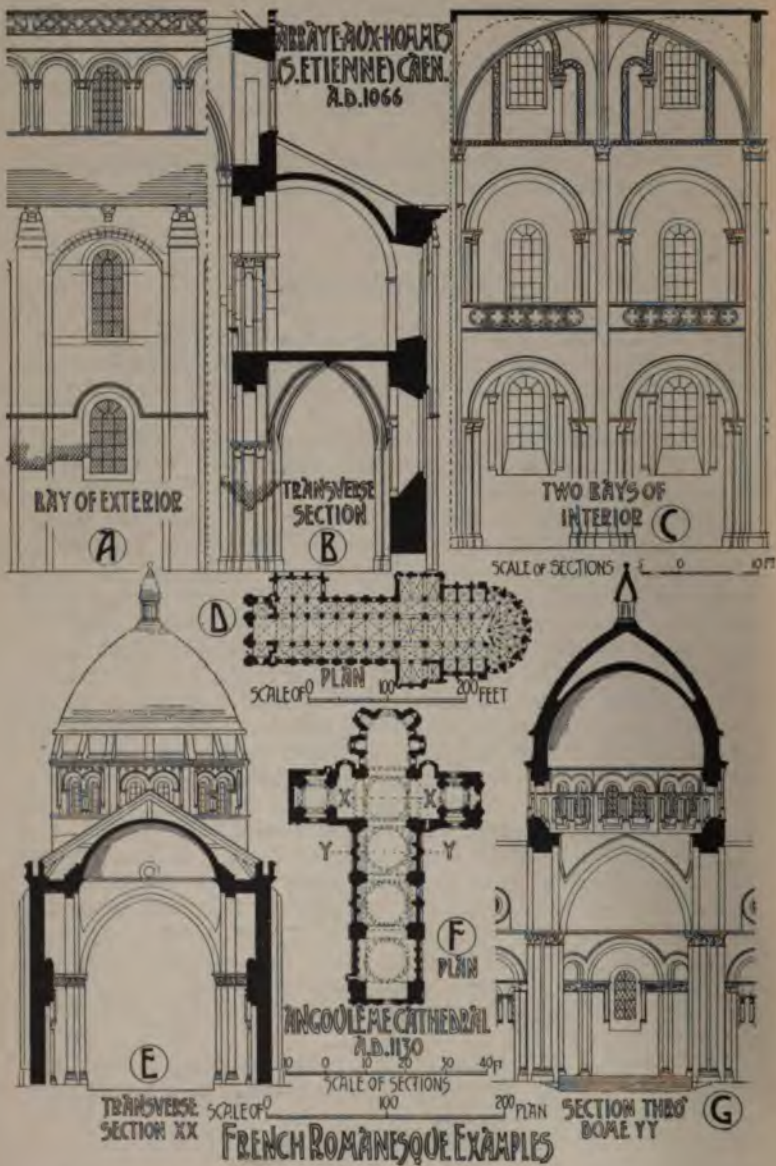
*Angoulême Cathedral* (No. 72 E, F, G) is of a different type. The long aisleless nave has four stone domes supported on pointed arches. The transepts are shallow, the choir is apsidal. A splendid square tower, with many storeys of arcaded openings, is attached to the north transept. The smaller churches in this district followed this type, and are full of interest.

*Cahors Cathedral* (A.D. 1050–1100) is an imitation of S. Irene at Constantinople.

The *Abbey of Fontevrault* (1101–1119) resembles Angoulême, but shows a new development in being planned as a Latin cross, as are many other examples.

The churches at *Autun* (1150) and *Langres* (1160) also have aisleless naves.

In **Auvergne** the geological influence is frequently apparent.




FRENCH ROMANESQUE EXAMPLES



73. The Abbaye-aux-Hommes (S. Etienne), Caen.
View of East End.



It is a volcanic country; inlaid decoration is formed with different coloured lavas, giving a local character to the buildings, as at *Nôtre Dame du Port, Clermont.*

In **Provence** pointed tunnel vaults are used. There are numerous remains of the eleventh and twelfth centuries, all showing classical influence, as *Nôtre Dame at Avignon.* The portals of *S. Trophîme at Arles* (No. 74), and *S. Gilles*, exhibit great richness of effect and beauty of detail. The cloisters specially require attention; they consist of columns, used in couples in the depth of the wall, and carrying semicircular arches. These arcades are entirely open, and no attempt at tracery-filling is made. The deep capitals are a special feature, and are sculptured with sharp and distinctive foliage.

In **Normandy,** prosperous by reason of the power of the Norman dukes, the vaulted basilica began at this time to develop towards the complete Gothic style of the thirteenth century, and the chuches at **Caen** illustrate those difficulties in vaulting which ultimately led to the introduction of the pointed arch.

The **Abbaye-aux-Hommes** (S. Etienne), commenced in A.D. 1066 by William the Conqueror, in expiation of having married Matilda in spite of their close relationship, is the best known example (No. 72). In plan it seems founded on the Romanesque church of Spires (Germany). It had originally an eastern apse, superseded later by the characteristic *chevêt* (No. 73).

The west end is flanked by two towers crowned by spires. This façade is a prototype of the Gothic schemes to follow. Internally the vaulting illustrates the problems that were being solved. The system of Sexpartite vaulting (No. 72 c) adopted here is a stage, soon to be superseded by the use of the pointed arch, which solved the difficulty of the oblong compartment (No. 84 F).

The *Abbaye-aux-Dames* (*La Trinité*) (No. 71), commenced in A.D. 1083, and *the Church of St. Nicholas*, commenced in A.D. 1084, both at Caen, are fine examples.

The former shows especially the progress of intersecting vaulting, and is referred to in the Gothic section.

The *Abbey Church of Mont St. Michel* (since restored) is notable.

The difficulties which led to the introduction of the pointed arch are here clearly seen. In the nave vaulting, two bays are included under one scheme, so as to equalize the width, and therefore the rise of the arches as much as possible. By the introduction of the pointed arch, each compartment could be vaulted without reference to the neighbouring one, because the difference between the width of the nave and the distance between the piers longitudinally could be easily surmounted by pointed

arches of different radius which could be so managed as to equalize the height of the ribs.

The style was introduced into England by Edward the Confessor and William the Conqueror.

## 4. COMPARATIVE.

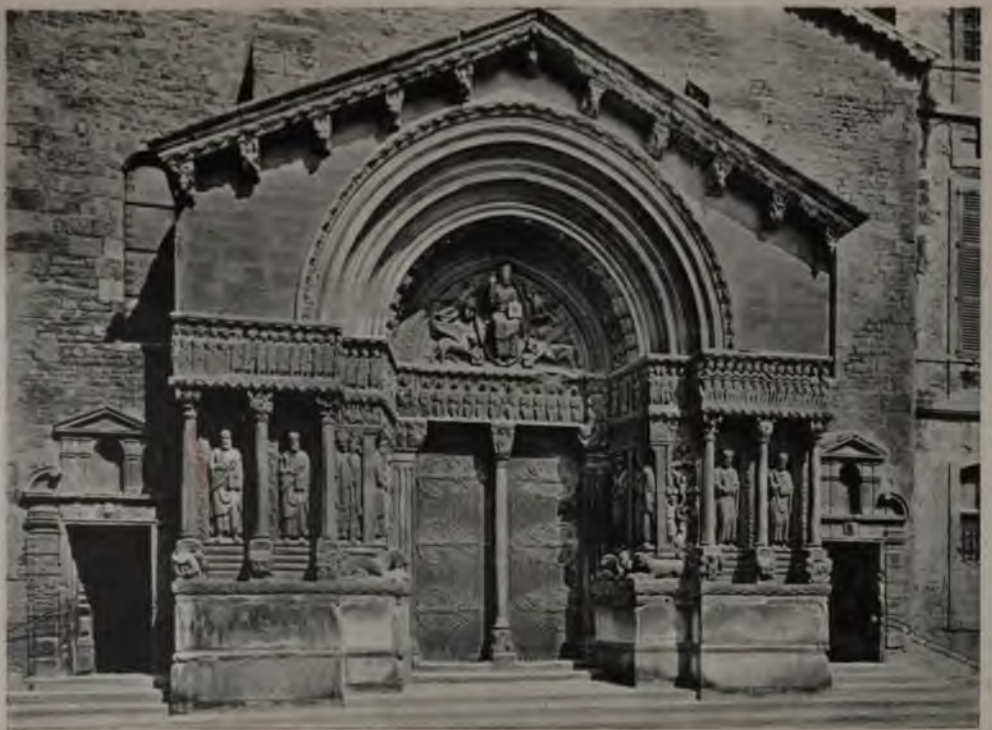
A. **Plans.**—In the *south*, internal buttresses, inclosing the outer range of chapels, are preferred, as at Vienne cathedral. Round churches are rare in the south. Towers are detached, and resemble Italian examples. Cloisters are a feature treated with the utmost elaboration and richness. Generally, double columns with magnificent capitals receive the round arches of the narrow bays, which were entirely open; glazing or tracery were not required by the climate.

In the *north*, the increasing demand for vaulted interiors modifies the planning. The vaulting ribs are provided with individual shafts, which develop the pier plans. In the setting out of the bays important changes are introduced. In early plans the nave bay is square, including two bays of the aisles in its compartment. The possibility of vaulting oblong spaces once grasped, enabled every bay of the aisle to be a compartment of the church.

B. **Walls.**—Massiveness is the characteristic of all the early work. Walls were of rubble with facing stones. Elaboration is reserved for doorways in the arcaded lower portion of the façades, which are often models of simplicity and richness. Buttresses are often mere strips of slight projection (No. 71), and the façades are arranged in storeys, with window lights in pairs or groups. Flying buttresses, admitting of high clerestories containing windows lighting the nave, were introduced between A.D. 1150–1200. The towers are mostly square with pyramidal roofs (Nos. 71 and 73).

C. **Openings.**—The earlier vaulted churches have no clerestory (see below). In the south, narrow openings suffice, but with wide splays to admit light, while in the north a commencement in grouping is made, more especially in the direction of filling in the vault spandrels (clerestory), with arrangements of three and five light openings. The ante-chapels at the church at Vezelay (1130) are generally referred to as having the earliest pointed vaults in France.

D. **Roofs.**—In Provence, the early treatment is a tunnel vault to the nave, buttressed by half tunnels over the aisles, often in two storeys. No clerestory is thus provided. The pointed section is used doubtless to lessen the thrust upon the walls, and



74. PORCH, S. TROPHIME, ARLES.—



to carry the roofing slabs of stone direct upon the extrados of the vault. In the north, clerestories are obtained by means of intersections in the nave vaults (No. 72), and arches across the aisles are developed towards the later flying buttresses. Note that the vault, in the northern examples, is a stone ceiling protected by a wooden roof. Groined ribs were introduced in the twelfth century.

E. **Columns.**—In nave arcades, square piers, recessed in planes, have upon their faces half round shafts, that run up to carry the vaulting (No. 75 L–P). Columns (No. 75 D, E) reminiscent of Roman times, circular or octagonal, are also used, often alternately, and then the vaulting shafts start awkwardly from the abacus of their huge capitals, imitated from the Corinthian order. The carrying up of the vaulting shafts emphasizes the division of the nave into bays.

F. **Mouldings.**—In the south, the elegance due to classic tradition contrasts with the rough axed decoration cut upon the structural features of the Norman work. In the latter, arched jambs are formed in recessed planes (No. 74), with nook shafts plainly fluted, or cut with zigzags. Capitals are cubical blocks, or carved with rude copies of the acanthus leaves from old Roman examples (No. 75). Corbel tables, supported by plain blocks or grotesque heads, etc., form the cornices of the walls (No. 75 B, G, J).

G. **Ornament.**—Painted glass is not favoured in southern examples, opaque colour decoration being preferred, with small, clear-glazed openings. The diaper work so common in the spandrels of arches, etc., in northern work is supposed to have arisen from the imitation, in carving, of the colour pattern work, or draperies that originally occupied the same positions. Figure sculpture was more frequently employed in the south (No. 74). Stained glass favouring large openings is gradually developed in the north. Increased size in the clerestories is obtained by the use of the pointed arch.

The West Fronts of the churches of the Charente District in Aquitania are elaborately treated with carved ornament representing figures of men and animals, or foliage only. The capitals of the ground storey so treated, are often continued as a rich, broad frieze.

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# FRENCH ROMANESQUE ORNAMENT.



A CAP: FROM FLEAC.



B CORBEL TABLE: PONTORSON



C FRIEZE: CATHEDRAL DE VAISON.



CAP ST TROPHIME Nº ARLES D



E COUPLED CAPS: CLOISTER OF ST TROPHIME, ARLES.



F ARCH-IVOLT ST PAUL-TROIS-CHATEAUX.



G CORBEL ABBAYE DE MONTMAJOUR NEAR ARLES



H FRIEZE: ANGOULÊME CATHEDRAL.



CORBEL. J



K CAP: D'OUEZY.



L M N O P

VARIOUS PLANS OF PIERS.

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# GERMAN ROMANESQUE.

"Both the Castell and the Toure
And eke the hall and every boure,
Without peeces or joynings,
But many subtle compassings
As babeuries and pinnacles
Imageries and tabernacles
I saw, and eke full of windows
As flakes fallen in great snowes."—CHAUCER.

## 1. INFLUENCES.

**i. Geographical.**—On the banks of the Rhine, and in the south, cities had been established during the Roman occupation, and it was in these parts that Christianity took root, while, in the north and east, paganism was still existing.

**ii. Geological.**—The existence of stone in the Rhine valley facilitated the erection of churches, rendered permanent and fireproof by the early introduction of vaulting. No stone being found on the sandy plains of Prussia, brick was employed by the North Germans, and the style here is consequently varied from that of the Rhine valley.

**iii. Climate.**—The average temperature of Central Germany may be said to be the same as Southern England, but with wider extremes, as the heat in the summer is ten degrees greater, and in the winter correspondingly lower, so that carriages in Berlin are converted into sledges.

**iv. Religion.** - In the early period the Germans looked much to Rome. Charlemagne was a strong supporter of Christianity, forcing the people of Saxony to embrace that religion. Ritually, the most important local German differences are the double apse plan, and the number and importance of the circular churches, built as tombs, or more especially as baptisteries, the conversion of the tribes giving great importance to that ceremony.

**v. Social and Political.** — The Germans united under Charlemagne afterwards split up into principalities, etc., whereas

the French, divided at first, became fused into an absolute monarchy and have remained, in spite of all changes, the least divided of continental powers. In the later portion of this period, Germany was troubled by the dissensions of the two rival parties, the Guelphs and Ghibellines, the one the supporters of the Church and municipal rights, and the other representing the Imperial authority. The conflict between the two took place mainly in Lombardy.

**vi. Historical.**—It must be remembered that Charlemagne, the first Frankish king who became Roman Emperor, being crowned by the Pope at Rome, ruled over the land of the Franks, which included all Central Germany and Northern Gaul. In addition he established the Frankish dominion over South Gaul and Germany. In a great measure, he restored the arts and civilization to Western Europe, resulting in the erection of many important buildings in his dominions.

On Charlemagne's death in A.D. 814 this empire crumbled to pieces through internal wars. In the unsettled state of the country, the German princes pushed themselves into prominence by demanding the right to elect their own sovereign—Conrad the First, reigning as King of Germany at the beginning of the tenth century. His successor, Otho, extended the boundary of the German Empire southwards into Lombardy, being crowned Emperor of the West at Rome. This shows the leading position of the Frankish emperors at the period, not without its influence on the architecture of these regions. The political relations of the Hohenstaufen Emperors with Lombardy, is evidenced in the similarity of the architecture of the two countries. The house of Hapsburg succeeded the Hohenstaufen dynasty in 1273, when French Gothic architecture was introduced, and henceforth copied.

## 2. ARCHITECTURAL CHARACTER.

The style bears a strong resemblance to North Italian Romanesque, and the reasons for this have been already noted (page 157).

The Rhine districts possess the most fully-developed Romanesque to be found anywhere, and the style has fewer local varieties than in France. The general architectural character is rich in the multiplication of circular and octagonal turrets, in conjunction with polygonal domes, and the use of arcaded galleries under the eaves. The most richly ornamented parts are the doorways and capitals, which are rude, yet bold and effective in execution.

Vaulting appears to have been first adopted in the Rhenish churches some fifty years after its general adoption in France.

The Germans may claim to be the inventors of the Lombard, or North Italian, Romanesque. Their round arched style lasted till about 1268.

## 3. EXAMPLES.

The early churches of Saxony and Hildesheim are of the basilican type with triple eastern apses, as at **Gernrode** (958-1050), **St. Godehard** (1133), at Hildesheim, and elsewhere.

With the exception of Saxony and the Rhenish provinces, few works of importance were erected till the Gothic period. The Rhine valley is, however, specially rich in Romanesque Examples.

Cologne possesses some of the finest churches, and among these **St. Maria in Capitolio, St. Martin** (A.D. 1150–1170), **the Church of the Apostles** (A.D. 1220–1250), and **St. Cunibert** may be mentioned. Besides these the Cathedrals at **Mayence** (A.D. 1036), **Worms, Spires** (eleventh century), and the east end of **Bonn** (twelfth century) are important.

The **Church of the Apostles at Cologne** (A.D. 1220–1250) is one of a series which possesses characteristic features (Nos. 76 and 77 A, B, C). In plan it consists of a broad nave, and of aisles half the width of the nave. The eastern portion has three apses, opening from three sides of the central space, crowned by a low octagonal tower, giving richness and importance to this portion of the church. The grouping externally is effective, the face of the wall being divided up by arcading, and crowned with the characteristic row of small arches under the eaves of the roof. Compare the bold dignity of this church with the confused effect of the French *chevet*, as S. Etienne, Caen (No. 73).

The **Cathedral of Worms** (1110 1200) vies with **Mayence, Trèves** (A.D. 1047), and **Spires**, as the representative cathedral of this period. As usual (Nos. 77 D, E, F, G and 78), one bay of the nave occupies two of the aisles, both being covered with cross vaults. Twin circular towers flank the eastern and western apses, the crossing of the nave and transept is covered with a low octagonal tower, with a pointed roof. The entrances are placed in the sides, a position which finds favour in Germany as in England. The façades have semicircular windows, framed in with flat pilaster strips as buttresses.

The **Cathedral at Aix-la-Chapelle,** built A.D. 768–814 by the Emperor Charlemagne as a royal tomb for himself, is interesting as resembling St. Vitale at Ravenna. In plan it is a polygon of sixteen sides, 105 feet in diameter. Internally, every two angles

# GERMAN ROMANESQUE EXAMPLES.

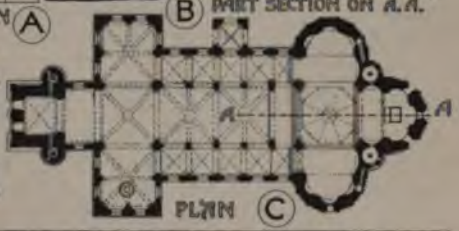


PART LONGITUDINAL ELEVATION (A)

B PART SECTION ON A.A.

## CHURCH OF THE APOSTLES AT COLOGNE. A.D. 1220-50.

TYPICAL EXAMPLE of WESTERN TRANSEPTS AND EASTERN PORTION TRIANSAL IN PLAN THERE IS A SQUARE WESTERN TOWER AND OCTAGONAL LANTERN AT EASTERN END.



PLAN (C)



(D) PART EXTERNAL ELEVATION (E) PART LONGITUDINAL SECTION

(F) TRANSVERSE SECTION

## WORMS CATHEDRAL 1110 - 1200 A.D.

AN EXAMPLE WITH EASTERN & WESTERN APSE BOTH BEING FLANKED BY FOUR TOWERS, OCTAGONAL LANTERNS AT EAST AND WEST ENDS



(C) A A. A.A. ENTRANCES.

SCALE OF ELEVATION 0 10 20 30 40 50 FT

0 20 40 60 80 100 FT SCALE OF PLANS

converge on to one pier, which thus number eight. These support a dome 47 feet 6 inches in diameter, rising above the side aisles, which are in two storeys. It is of interest, historically, as the crowning place of the Western Emperors.

**Lubeck Cathedral** is a type of brick architecture peculiar to North Germany; the nave and transept are of this period, being founded in 1173.

Germany is remarkable for a series of double or *two-storeyed churches*, generally attached to castles, as at Nuremberg, Landsberg, Steinfurt. In these it is held that the upper chapel was used by the Prince and his personal retinue and the lower by the retainers. In some instances the upper church would appear to have been provided in case of floods.

## 4. COMPARATIVE.

A. **Plans.**—The naves and aisles are vaulted in square bays, two bays of the aisle making one of the nave, as in the plan of Worms Cathedral (No. 77 G).

There is sometimes a triforium, and always a clerestory.

A tower occurs at the crossing with a high-pitched roof (No. 78). Western transepts are found, contrasting in this respect with Italy.

The choir is always apsidal, and often raised, as in Lombardy, to admit of crypts beneath. Western apses are frequent (No. 77 G). (Ex.: at Trèves and the Abbey Church at Laach.)

Apses also occur at the ends of transepts. (Ex.: Church of the Apostles at Cologne, No. 77 C.)

We should especially note the multiplicity of towers, there usually being two at the east end flanking the apse, and also often two western towers, connected by a gallery (Nos. 78 and 79 G). The towers rise in successive storeys, from square to circular and polygonal. A characteristic finish is four gables and steep roof, a hip rafter rising from each gable top (No. 79 G). These towers produce a rich and varied outline.

B. **Walls.**—The blank walls are cut up by flat pilaster strips, connected horizontally by small arches springing from corbels (Nos. 77 D and 79 E). Owing to the smallness of scale this favourite feature is to be considered as a string course or cornice.

Open arcades (see Italian Romanesque, page 160, for origin, occur under the eaves of roofs, especially round the apses (Nos. 76 and 78).

C. **Openings.**—No tendency to tracery is found. The windows are usually single, being rarely or never grouped (No. 78).



78. WORMS CATHEDRAL, FROM THE N.E. - Germ - Rhenish Romanesque




GERMAN & ROMANESQUE ORNAMENT.
A
CAP, LIMBORG CATHEDRAL.
B
CAP, LIMBORG CATHEDRAL.
E
CORNICE, ETC. FROM EAVES OF TRANSEPT ROOF WORMS.
CAPS: DOORWAY, LIMBORG. J.
WINDOW, LORCH ABBEY CHURCH. M
CAP FROM CHURCH OF STPANTALEON COLOGNE.
C
G TOWERS, LIMBORG CATHEDRAL. SHOWING CHARACTERISTIC TOWER ROOFS, ETC.
D
CAP AND BASE FROM ST. GEREON, COLOGNE.
F
DOUBLE CAP, ST. GEREON, COLOGNE.
H CAP AND BASE, WORMS.
K
L
COLUMN & ILSENBURG.
PLAN OF JAMB
N
DOORWAY, WORMS CATHEDRAL.
ARCH & MOULD

The doorways are placed at the side, rarely in the west front or transept ends (Nos. 77 and 79 N).

D. **Roofs.**—In the Rhine district vaulting was introduced, a central semicircular barrel vault was supported by half-circle vaults over the aisles, a system which led by degrees to complete Gothic vaulting. Timber roofs were also employed for large spans. Tower roofs, and spires of curious form, are a great feature of the style. A gable on each tower face, with high pitched intersecting roofs, is common, and is developed by carrying up the planes of the roof to form a pyramid, which leads on to further spire growth (No. 79 G).

E. **Columns.**—The nave arcades are generally constructed of square piers, with half columns attached. The alternation of piers and columns is a favourite German feature. The capitals, though rude in execution, are well designed, being superior to the later Gothic examples (No. 79).

F. **Mouldings** are not a strong feature of the style (see under Walls), caps and bases take a distinctive form, leading from Roman through Romanesque and Gothic.

G. **Ornament.**—Internally the flat plain surfaces were decorated in fresco. The traditions and examples of the early Christian and Byzantine mosaic decorations, were carried on in colour.

In the north the enforced use of brick was unfavourable to rich decoration; there is thus an absence of sculptured foliage. Coloured bricks were used.

## 5. REFERENCE BOOKS.

Boisserée (S.).—"Denkmale der Baukunst am Nieder-Rhein." Folio. Munich, 1844.

Moller (G.).—"Denkmaeler der Deutschen Baukunst." Folio. Leipzig, 1852.




80.

# GOTHIC ARCHITECTURE IN EUROPE.

## GENERAL INTRODUCTION.[1]

### 1. INFLUENCES.

**i. Geographical.**—Refer to each country. The nations of Western Europe had come into existence. Germany was the centre of the Western Empire and the Kingdoms of France, Italy and Spain were also becoming strong united states.

Russia, Sweden and Norway had little to do with Western Europe. England had become thoroughly united under the Norman Kings, while Scotland and Ireland were under her influence.

**ii. Geological.**—Refer to each country.

**iii. Climate:**—Refer to each country. Generally, it has been pointed out that the Northern sun, as in Northern Europe, is more suitable for Gothic than Classic Architecture. It is a sun

[1] Before treating of the development of the style peculiar to each country, an outline sketch in general is given.

wheeling somewhat low on an average round the sky, and shadows are best caught by outstanding buttresses and the flying lateral members of a Gothic façade, than by the level lines of the heavy classic horizontal cornices, which are more effective, under the Grecian or Italian sun, which in those countries stays higher in the firmament.

The high pitched Gothic roof of mediæval Europe is suggestive of snow and bad weather.

**iv. Religion.**—Refer to general introduction to Romanesque Architecture (page 145). For remarks on the Monastic orders see page 145. The immense power of the Popes, which was probably at its height in the thirteenth century, was evidenced in the way they made and unmade Emperors and Kings and gave away their dominions. The clergy also took a prominent part in temporal affairs, in consequence of their learning, and by so doing attracted wealth and power to their orders. In Germany, many of the Abbots and Bishops were princes of the Empire, and the three Archbishops of Cologne, Trèves, and Mayence were the Electors of the Emperor. The worship of relics, of local saints (as S. Hugh at Lincoln, S. Thomas at Canterbury, S. Swithun at Winchester), the periodical pilgrimages, the adoration of the Virgin Mary and other changes of ritual, have all had their influence on the monuments. Mariolatry is responsible for the addition of lady chapels either laterally, as at Ely (No. 89 B), or at the eastern extremity, as Salisbury (No. 120 F). The demand for chapels dedicated to particular saints, for an ambulatory to be used for processional purposes and the foundation of chantry chapels, where masses for the dead could be repeated, have also affected the general plan of many buildings.

**v. Social and Political.**—Refer to each country. The growth of the towns is an important point as bringing about increase of riches and the development into important cities, which vied with each other in the erection of magnificent buildings. In Italy, the whole country became divided into different portions belonging to the bigger towns and in after times into principalities. In Germany, towns joined together for mutual defence, amongst the most famous being those forming the Hanseatic league.

**vi. Historical.**—Refer to each country.

## 2. ARCHITECTURAL CHARACTER.

The character of Gothic Architecture (see Nos. 81 and 114), generally in England and on the Continent, requires some introduction. As the principles of Gothic Architecture are similar throughout Europe, we preface our inquiry into the character it

possesses with the following remarks. The fully-developed Gothic art of the thirteenth century was the style which had been slowly developing itself throughout Europe as a necessary sequence of the Romanesque style. No. 81 explains the principles of Gothic construction, and must be referred to while reading this section.

In the thirteenth, fourteenth, and fifteenth centuries the Gothic masons were exhausting the possibilities of stone in small pieces as a building material. They heaped it up in towers that rose on open archways through the lofty roofs of the surrounding naves, and tapered away in shell-like spires embroidered in all the fret-work of Gothic tracery. They hung it aloft in ponderous vaults treated by art to seem the gossamer web of nature, scarce capable of bearing the stalactite pendants in which the latent fancy of the latest age found its expression. Eventually pushing their practice to the furthest boundaries, they cut the granular stone to the thinness of fibrous wood or iron, and revelled in tricks of construction and marvels of workmanship that astonish our inexpertness.

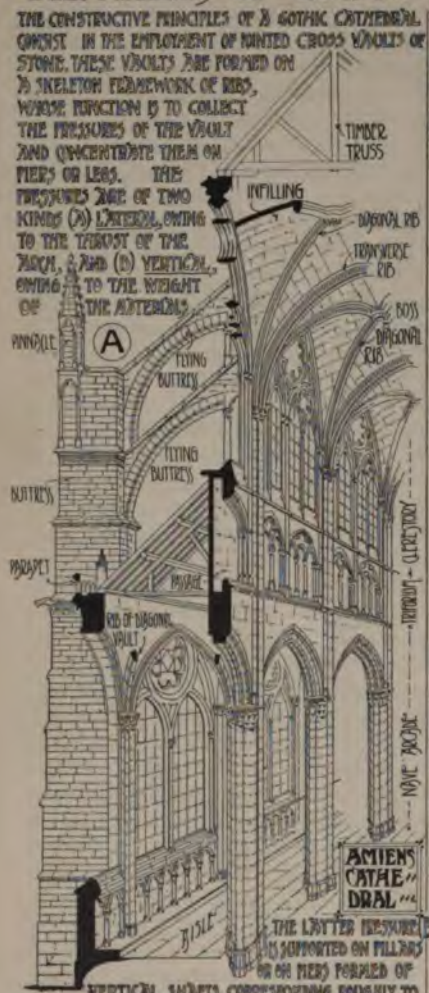
In the thirteenth century the Gothic spirit, taking account of mechanical forces, employed materials at hand according to their nature; it sought for those laws of elasticity and equilibrium which were to be substituted for those of inert stability, the only laws known to the Greeks and Romans. It studied how to economize material, because it was forced to elevate human labour from being the mere carrier of material, to the highest form of technical art and skill.

In the Romanesque period, the walling generally consisted of a rubble core between two faces of stonework, but at the beginning of the thirteenth century, edifices higher and of larger extent being built, a new method was gradually evolved. For, in seeking to diminish the thickness of the interior supports and of the walls, it was necessary for the architects on the one hand to find a mode of construction more homogeneous and more capable of resistance, and on the other to avoid the expense of labour which the carrying of material of large size involved. Large facing stones were therefore more and more discarded, and stones with thick mortar joints, and small enough to be carried on a man's back, were gradually introduced, and were employed throughout the thickness of the wall; this method is a middle course between the Roman construction in large facing stones, and that of rough stones included between brick and stone walls.

In a word, the architecture was readily subjected to the means at command, for the architecture of the thirteenth century was adapted to a structure of small stones rather than to one of jointed blocks, and was a compromise between Roman concrete walling and the use of jointed stones without mortar. The military

# PRINCIPLES OF GOTHIC CONSTRUCTION.

THE CONSTRUCTIVE PRINCIPLES OF A GOTHIC CATHEDRAL CONSIST IN THE EMPLOYMENT OF RIBBED CROSS VAULTS OF STONE. THESE VAULTS ARE FORMED ON A SKELETON FRAMEWORK OF RIBS, WHOSE FUNCTION IS TO COLLECT THE PRESSURES OF THE VAULT AND CONCENTRATE THEM ON PIERS OR LEGS. THE PRESSURES ARE OF TWO KINDS (A) LATERAL, OWING TO THE THRUST OF THE ARCH, AND (B) VERTICAL, OWING TO THE WEIGHT OF THE MATERIALS.




AMIENS CATHEDRAL.

THE LATTER PRESSURE (B) IS SUPPORTED ON PILLARS OR ON PIERS FORMED OF VERTICAL SHAFTS CORRESPONDING ROUGHLY TO THE VAULT RIBS. THE LATERAL PRESSURES ARE LIKEWISE COLLECTED OVER THE PIERS, AND ARE COUNTERACTED BY ARCHES, (FLYING BUTTRESSES) LEANING AGAINST THE NAVE WALL AND SPRINGING FROM MASSIVE BUTTRESSES WEIGHTED BY PINNACLES, PLACED SOME DISTANCE FROM THE BUILDING.




PLAN AND SETTING OUT OF GROINED VAULT WITH TRANSVERSE, DIAGONAL & WALL RIBS FROM ST. SAVIOURS, SOUTHWARK.

organization, which had helped to mould the Roman style, was, of course, wanting in the Gothic period, when stone was sought in various quarries from different proprietors and transported at the builder's expense or with voluntary aid; for the workmen were forced labourers, doing as little as possible, and taken away, ever and anon, to fight in their owners' battles. In regard to the material at hand, it must be observed that the Gothic architects of Western Europe possessed stone that was strong and hard, but which split in thin pieces; they had not at their disposal either the marble of Pentelicus or the blocks of granite which the Romans procured from Corsica, the Alps, and the East; they were absolutely compelled to erect considerable buildings with thin courses of stone, thus largely moulding the style, whereas the Greeks erected small buildings with enormous blocks of marble.

This condition naturally influenced the forms given to the architecture.

In regard to constructive features, the Gothic builders often contented themselves with forming both the transverse and diagonal ribs of their new system of vaulting as pointed arches. In other cases the diagonal ribs were kept semicircular. These arches became permanent centres on which the panels or "infilling" of thin stone could rest. This arrangement enabled the building to be erected all at once or in parts without disadvantage to the solidity of the edifice. The pointed arch gave a suggestion of height coinciding with the aspiring tendency of the style and its connection with religious enthusiasm. This use of stone as against the concrete of the Roman period gave the elasticity to the building which enabled it to yield to strain without rending, and this, in its turn, was a *primâ facie* reason for the non-employment of a concrete or homogeneous mass.

Among the early Gothic archite ts the arch absolutely determined the form of the support. The arch again determined not only the structure but the form which it took, and the architecture was dictated solely by the arch. Thus material, through the form which it dictates, may be said to influence architecture in this period.

In any true architecture form is not the result of caprice; it is only the expression of the structure. If the column is a real support and its capital is expanded, it is to sustain a load; if the mouldings and ornaments are developed, it is because such development is necessary. If the vaults are divided by ribs it is because these ribs are so many sinews performing a function. In Gothic vaulting the pressures of the vaults are transmitted to the angles of each compartment by the diagonal ribs. Such pressures are of two kinds: *outwards* by the nature of the arch,

and *downwards* by the weight of the material, the resultant of the two being in an oblique direction (No. 81).

Every vertical support depends for its stability on being stayed by a buttress, which in its turn is weighted by a pinnacle; every arch-thrust meets another which counteracts it. In the case of the nave vaults, the collected pressures are counteracted by arches, called flying buttresses, leaning against the nave wall and supdorted at some distance by massive piers, weighted with tall pinnacles (No. 114 A). A considerable portion of the mere weight of wall even was therefore transmitted to a point outside the Cathedral, and opposed by buttresses which are in reality permanent shores preventing the vaults from spreading or falling out. In this period walls as supports no longer occur; they have become mere enclosures, and the entire system consists of a framework of ribbed vaulting, piers and buttresses held in equilibrium, not by their inert mass, as in Roman construction, but by the combination of oblique forces neutralizing each other. Even the walls themselves are occupied principally by windows of glass, divided by stone mullions, and the upper part formed with geometrical combinations of curves of immense variety of design. No such system of construction, it is evident, could have been developed without the employment of such a material as stone, laid in tolerably small courses with mortar joints, which gave the necessary elasticity to the various pressures.

This system, through the material used, shaped the mouldings, which fulfilled a useful function, protecting the architectural members, as in the case of eaves courses, hood moulds, etc., and by jutting forward providing corbels and springers. Further, the comparative scarcity of materials taught the Gothic architects to practise economy in their use; this, no doubt, helped towards the evolution of the characteristic mouldings of the mediæval period, which exhibit much less waste of material than those common in Classic times.

Every new erection was a step towards the limits assigned by the material at the disposal of the architect.

In the Middle Ages the structure was decorated, it was the naked body to which an attractive form was sought to be given, and it was in this particular that the architecture of this period stands in such close relation to Greek art. The same principle of truth was upheld, but now the form had changed.

It is no longer the self-contained Greek temple, reposeful in the severity of horizontal lines, but a complex, restless structure whose aspiring tendencies find expression in vertical grouping. There is unity in the whole because there is an exact and necessary correlation between all the parts.



A. MILAN. Italy



B. EVREUX.



C. COLOGNE.



D. VIENNA.



E. CHARTRES. Early Gothic 1150-1300 A.D. 1200 middle G

82. GERMAN FRANCE



Although many, if not most, of the architectural features were founded primarily on structural necessity, yet others are the expression of artistic invention and of æsthetic requirements. The spire, as has been pointed out, was evolved from no utilitarian requirements, but was a sign of the communal spirit—an indication of municipal prosperity, forming an outward and visible sign of such a condition.

So far as internal architecture is concerned the invention of *painted glass* was an important factor in the development of the style, for the windows came to be looked upon merely as frames in which to exhibit painted transparent pictures of glass telling the incidents of Bible History.

Neither the painted sculpture and hieroglyphics of the Egyptian temples, the coloured and sculptured slabs of the Assyrian palaces, the paintings of the Greek temples, nor the mosaics and frescoes of the Byzantine and Romanesque periods produced colour effects that can be compared with the brilliancy and the many-tinted splendours of the transparent walls of a Gothic cathedral, with its windows a blaze of glorious colouring. In the north and west of Europe, where this material was the principal mode of decoration, the walls were kept internally as flat as possible, so as to allow the windows to be seen in every direction, while all the mechanical expedients of piers and flying buttresses are placed on the outside to facilitate the introduction of this new material—painted glass. Even further, when by the grouping of windows and the subsequent formation of mullions and tracery, the entire screen wall between the piers came to be occupied by bright coloured windows, these windows of necessity took the pointed form of the vault, in place of the previous semicircular form; the pointed form having been originally adopted for constructive reasons arising from the progress of the art of vaulting, which was further influenced by the desire for lofty windows to act as frames for the glass.

## 3. EXAMPLES.

## BUILDINGS ERECTED DURING THE MIDDLE AGES.

### CATHEDRALS AND CHURCHES.

The construction of these buildings, many of which were founded in the eleventh and twelfth centuries, was carried on from generation to generation.

The place in the national life which the mediæval cathedrals occupied was an important one, and must be realized if we would understand how they were regarded. In the absence of books and of people able to read them, cathedrals were erected and decorated partly as a means of popular education, the sculpture and the painted glass reflecting the incidents of Bible History from the creation to the redemption of mankind, the sculptured forms and brilliant colouring rendering them easily understood by the people. The virtues and vices, with their symbols, were also displayed, either in glass or statuary, along with their reward or punishment. Saints and angels told of the better life, and the various handicrafts, both of peace and war, were mirrored in imperishable stone or coloured glass. They, to a large extent, took the place in our social state since occupied by such modern institutions as the Board School, Free Library, Museum, Picture Gallery and Concert Hall. They were the history books of the period.

Architecture then as now was also the grand chronicle of secular history, past and present, in which Kings, Nobles and Knights were represented.

The plans (Nos. 89 and 116) are generally in the form of a Latin cross, the short arms forming the transepts. The cruciform ground plan is considered by some as a development from the early Christian basilicas, such as Old St. Peter's at Rome (page 118), and by others, as evolved from the cruciform buildings erected for sepulchral purposes as early as the period of Constantine. A tower, sometimes crowned with a spire, is generally erected over the crossing or at the west end. As a rule the nave is the portion to the westward, and the choir, containing the bishop and clergy, is that to the eastward of the crossing.

The arms north and south are called the transepts (No. 89).

Each of these divisions is further divided into a central nave and side aisles, separated by columns or piers. The principal entrance, often richly ornamented, is at the west end, or by a porch on the south or north sides.

The columns to the nave support the arches, which carry the main walls of the church, rising above the aisle roof (No. 81). Above the arcade, it will be seen there are a series of small arches, opening into a dark space caused by the height of the sloping roof of the aisle; this is called the *triforium*, or blind storey. Above the triforium is a range of windows in the main wall, admitting light into the upper part of the nave; this division is called the *clerestory*, or "clear story," probably derived from the French word *clair*, or light, here admitted by the many windows in this portion of the nave wall. The head of these

windows is generally the level of the ridge of the stone vault of the nave, which is covered in by a high pitched wooden roof.

The east ends or choirs, usually square-ended, in England (No. 89) are generally richer than the remainder of the church, and the floor is raised above the nave level by steps.

The east ends of Norwich, Peterborough (altered), Lichfield and Canterbury, of Norman origin, are circular, while Westminster Abbey has a ring of chapels or *chevêt*.

The lady-chapel is placed beyond the choir at the extreme east end, as at Norwich, Peterborough (No. 89 c), and Salisbury, or on one side, as at Ely (No. 89 B).

The cloisters are generally, but not invariably, south and west of the transept, the warmest and most sheltered position. Besides being used for the studies, reading and writing of the monks, they were also the centre of the secular affairs of the community.

Such is the general distribution of the parts of a cathedral or large church, from which, naturally, many deviations will be noticed. For instance, the position and number of transepts vary, as will be seen on reference to Nos. 89, 116, 120, 128, 148.

Great length, and central towers (see Chichester, Durham, Worcester, Rochester, Oxford, York, Chester, Gloucester and Wells), are features of English cathedrals; western towers also occur in many examples, as at Lichfield (with spires), Durham, Canterbury, York, Wells, Lincoln and Ripon. Compared with such long, low, and highly grouped examples, continental cathedrals seem short, high, and often shapeless, owing to the intricacy and profusion of their buttressing (Nos. 81, 115). In churches, a single western tower is characteristic of English work (No. 98).

The interior of a Gothic cathedral has been thus described:

> "The tall shafts that mount in massy pride,
> Their mingling branches shoot from side to side;
> Where elfin sculptors with fantastic clue
> O'er the long roof their wild embroidery drew;
> When superstition, with capricious hand,
> In many a maze, the wreathèd window planned,
> With hues romantic tinged the gorgeous pane,
> To fill with holy light the wondrous fane,
> To aid the builder's model, richly rude,
> By no Vitruvian symmetry subdued."

The English Cathedrals, as a general rule, owe much of their beauty to their surroundings; they are generally placed in a large open space called the Close, as at Canterbury, Lincoln (No. 94) and Salisbury (No. 90)—

> "The ranged ramparts bright
> From level meadow-bases of deep grass
> Suddenly sealed the light"—

or are situated picturesquely on the banks of a river, as at Worcester, or Durham,

"Grand and vast that stands above the Wear;"

or, as Milton so descriptively has it, are

"Bosom'd high 'mid tufted trees."

The French Cathedrals, on the other hand, are often completely surrounded by houses and shops, which in many cases were actually built against the wall of the church itself (No. 123). For comparison of English and French Cathedrals, see page 261.

## MONASTIC BUILDINGS

were attached to abbey churches of the various religious orders (see *ante*, page 145).

A complete monastery, of which Westminster Abbey (No. 96) is a good example, generally included beside the church: (*a.*) *A Cloister Court*, off which were placed the Chapter House, with the Sacristy between it and the church, and the dormitory adjoining the church, approached by a separate staircase. The cellarage for beer, wine and oil, etc., was often placed under the dormitory. On the opposite side to the church were the refectory (dining hall) and kitchens, thus placed to keep away noise and smell. The lavatory was placed in the south cloister walk at Westminster, Wells, Chester, Peterborough and Gloucester.

(*b.*) *An Inner Court*, with infirmary, guest house, kitchen, servants' hall, library and scriptorium (the writing and illuminating room for making copies of books). (*c.*) *A Common Court*, with double gateway for carts, surrounded by granaries, bake-houses, stables, store rooms, servants' rooms, tribunal, prison, abbot's lodging, and barn.

(*d.*) *The Church Court or Close*, open to the public; and (*e.*) mills, workshops, gardens, orchards, and fishponds, etc.

Monasteries answered the purpose of inns in little frequented places, as is the case to this day on the continent.

The monks according to their several orders favoured different pursuits. The Benedictine was the chronicler and most learned of monks, and his dress was adopted by University students; the Augustinian favoured preaching and disputations; the Cistercian was the recluse, the friend of the poor, interested in agriculture and industrial pursuits; the Cluniac was the student and artist; the Carthusian the ascetic; and the Friars the missionary preachers of the period.

For a short description of the different orders of monks and friars, with characteristic plans adopted by them in their churches, see page 145.

## SECULAR ARCHITECTURE.

See under each country.

## 4. COMPARATIVE.

Refer to each country, and see page 309 for comparative analysis between the Gothic and Renaissance styles.

## 5. REFERENCE BOOKS.

Refer to each country and General Reference Books (page 5).

# ENGLISH ARCHITECTURE.

## ROMANESQUE (NORMAN) AND GOTHIC.

"Diffused in every part,
Spirit divine through forms of human art,
Faith had her arch,—her arch when winds blew loud,
Into the consciousness of safety thrill'd;
And Love her towers of dread foundation, laid
Under the grave of things. Hope had her spire
Star high, and pointing still to something higher."—WORDSWORTH.

### 1. INFLUENCES.

**i. Geographical.**—The position of England may well be considered unique.

"England, bound in with the triumphant sea,
Whose rocky shore beats back the envious siege.
* * * * *
This fortress built by nature for herself
Against infection and the hand of war;
This happy breed of men, this little world,
This precious stone set in the silver sea,
Which serves it in the office of a wall,
Or as a moat, defensive to a house,
Against the envy of less happier lands."
SHAKESPEARE, *Richard II.*

England has a connection with all the oceans of the world, and lies opposite the most populous, industrial, and wealthy plains of Europe. Isolation by the sea has had two alternating influences; it has assisted in the development of purely national characteristics, and again by giving rise to an incurable habit of travelling, has led to the importation of every phase of continental ideas and work.

**ii. Geological.**—The geology of the country is, in some way, responsible for the special character of the building in different

parts of England. Thus the transport of stone by sea was an important facility for some districts. In the Fen districts, in the absence of good roads, material was conveyed on horseback.

The granites of Cornwall and Aberdeen, the limestones of Portland, and the oolitic formations, such as the Bath stones, have all affected the districts in which they occur, although, of course, as transport became easier, there was a tendency for these local distinctions to disappear. Even in the Middle Ages stone was brought from a distance, as when Caen stone from Normandy was used in the erection of Canterbury Cathedral and other churches.

*Brickwork* of modern type came into general use in England about A.D. 1300, after being comparatively unused since the departure of the Romans. Little Wenham Hall (A.D. 1260) in Suffolk is probably the earliest brick building existing in England.

During the reigns of William and Mary and Queen Anne, brickwork was largely used in construction of houses, by Sir Christopher Wren and others. Hampton Court contains good examples of sixteenth and seventeenth century brickwork.

In chalk districts we have the characteristic *flint work*, as in Norfolk, Suffolk, and parts of the south coast.

*Terra-cotta* was also employed, as at Layer Marney Towers, Essex (1500–1525).

Where forests afforded abundant material we find *Half-timbered* work, as in the houses and mansions of Lancashire, Cheshire and elsewhere, principally erected during the fourteenth, fifteenth, and sixteenth centuries.

**iii. Climate.**—The climate is cool, temperate, mild, and moist. It is adapted for continuous work, during and on each day of every season. Cold, damp, and high winds with much rain necessitate constant forethought in building to exclude the weather. The deep porches, and small entrances of English cathedrals, are in contrast with continental entries, and are directly influenced by the climate.

**iv. Religion.**—The conversion to Christianity of the Kentish King Æthelbert was effected by St. Augustine in A.D. 597. By the end of the tenth century the greater part of Europe had embraced Christianity; the power of the papacy had steadily grown, and was at its height from the eleventh to the thirteenth century, several popes succeeding, during this period, in overruling the civil power.

In England, attempts at the assertion of national independence were continuous, but not pushed to extremes until a later date. The distinction between the regular and secular clergy was fully

established ; the different orders of monks had come into existence, and their buildings exhibit characteristic points of difference (see page 145).

As mentioned elsewhere (211) many of the cathedrals formed part of monastic foundations, which accounts for peculiarities of plan differentiating them from French Examples.

The dissolution of the monasteries took place in the reign of Henry VIII.

**v. Social and Political.**—*Roman occupation.*—Britain as a Roman colony, was divided into five provinces. Progress was made in agriculture, building, and mining. Roads (see page 101), houses, temples, baths, were erected in the Roman style, and Roman dress and language were adopted by the British higher classes.

The remains of this epoch consist chiefly of castles, such as those at Colchester, York, Lincoln, Richborough, and Burgh Castle (near Yarmouth).

The word "chester," as an affix, is derived from the Latin word castra = camp, and signifies a Roman settlement in this country, as at Winchester, Silchester, and Chester. The excavations at Silchester revealed the remains of a very fine basilica. The general construction of the Roman remains is of rubble masonry and concrete, with bands of thin flat tiles to bind the whole together.

The following events are interesting :—

A.D. 81. Agricola built his forts from the Clyde to the Forth.

A.D. 120. Hadrian's wall built from the Tyne to the Solway.

A.D. 210. The Emperor Severus strengthened Agricola's forts.

The Roman settlements in this country were, many of them, provided with basilicas or halls of justice, baths, markets, and temples ; and the mechanics of the period being noted for their skill, were even employed in France.

See page 101 for Roman Roads in England.

After the departure of the Romans in A.D. 420, the remains of Roman work were largely destroyed by the barbarians who succeeded them, but the influence of their architecture continued for a considerable period.

A.D. 449–547. The arrival of the Angles and Saxons did not improve matters, as they were especially ignorant in all matters of art. We are indebted to the Venerable Bede (A.D. 731) for most of the information we possess of this period, and from him we learn that a stone church was a rarity. About A.D. 650 seems to be the date at which a stone church was first built, and in some of these it has been suggested that the timber forms of the earlier churches were executed in stone (No. 103).

A.D. 603. See of London revived.

A.D. 604. See of Rochester founded.

A.D. 656. Monastery of Peterborough founded.

A.D. 681. Benedict Biscop flourished as a church-builder.

A.D. 871–901. King Alfred erected, or rebuilt, many of the ruined cities or monasteries, but most of these appear to have been built of wood, and covered with thatch.

A.D. 1017–1035. King Cnut founded Bury St. Edmunds monastery.

A.D. 1061. Harold's Collegiate Church at Waltham consecrated.

A.D. 1066. The conquest of England by the Normans.

The building operations of Bishop Gundulf, at Rochester Castle and the Tower of London, may be taken as a type of the widespread castle-building, by which the invaders secured their position in the newly-conquered country.

A.D. 1174. William of Sens built the choir of Canterbury Cathedral.

The boroughs led the way in self-government, free speech, and justice; and the formation of towns, around the abbeys or castles, took place, though the process was slow and difficult.

The immense power of the Church in the twelfth century should be noted.

A.D. 1154–1216. During this period the fusion of the native English and Norman settlers was effected, in order to withstand the strangers whom the Angevin kings were constantly bringing into England.

The Association of Freemasons, founded early in the thirteenth century, assisted materially in forwarding the technical progress of the new buildings.

A.D. 1215. The Magna Charta freed the Church, and remedied abuses.

A.D. 1265–1284. The conquest of Wales led to further development of the planning and design of castles.

A.D. 1265. Leicester's Parliament, to which burgesses were first summoned from cities and boroughs.

A.D. 1272–1307. Edward I. abandoned his foreign dominions, and attempted to consolidate Great Britain. The framework of modern political institutions began to develop.

Peace and prosperity in commerce gave importance to a middle class.

In A.D. 1362 the English language was ordered to be used in the law courts.

John Wycliffe (d. 1384) asserted the freedom of religious thought, and protested against the dogmas of the Papacy.

A.D. 1349–1381. The rise of the farmer class and free labourer,

owing to the Black Death, which swept away half the population of England.

The poet Chaucer (1340–1400) fought in the army of Edward III. against France. His employment on diplomatic services, in Italy and Flanders, exercised a marked influence on his writings.

William of Wykeham (d. 1404), the greatest of English Gothic builders, and the "Wolsey" of Edward III.

A.D. 1455–1471. The Wars of the Roses, that is, the struggle between the rival houses of York and Lancaster, distracted England at this period.

A.D. 1476. The introduction of printing by Caxton, a press being established by him in the Almonry at Westminster.

A.D. 1485. Accession of Henry VII. united the Houses of York and Lancaster, when a great impulse was given to the development of political institutions. The Lady Margaret, Countess of Richmond, as the foundress of colleges, developed education, and influenced art.

The condition of the English people, which can hardly be considered apart from the architecture which they produced, is well treated in "A Short History of the English People," by J. R. Green, LL.D.; and should be referred to by every student.

## vi. Historical.

B.C. 55. Julius Cæsar's first expedition into Britain.

A.D. 43. Expedition of the Emperor Claudius into Britain.

A.D. 84. Final conquest of Britain by Agricola, the General of Domitian.

A.D. 420. The Roman troops withdrawn from Britain.

A.D. 449–547. The English the Low Dutch tribes known as Angles, Saxons and Jutes conquest of Britain.

A.D. 450–550. Destruction of British churches by heathen invaders.

A.D. 597–681. Augustine landed in England and the conversion to Christianity commenced.

A.D. 802–837. Egbert (a friend of Charlemagne), King of the West Saxons, gradually brought the other English kingdoms and the Welsh into subjection.

A.D. 924. King Edward received the homage of all Britain.

A.D. 1042–1066. Edward the Confessor's religious enthusiasm. His work at Westminster Abbey opened for worship in 1065).

A.D. 1066. The conquest of England by the Normans caused a social and political revolution, the manners and government of

the English being transformed, and the military organization of feudalism being introduced. French traders came to reside in London and the large towns, thus bringing over Continental ideas.

A.D. 1099–1244. The Crusades, which brought about the contact of East and West, aided in the formation of the great universities, which had a direct influence on feudalism and the Church.

A.D. 1338–1453. The wars with France, known as the "Hundred Years' War."

A.D. 1360. Edward the Black Prince ruled at Bordeaux, as Prince of Aquitaine.

A.D. 1431. Henry VI. of England crowned King of France at Paris.

A.D. 1500. The introduction of gunpowder ruined feudalism. Fortresses which were impregnable against the bow of the yeoman and retainer, crumbled before the new artillery which lay at the entire disposal of King Henry VII. Houses were henceforward constructed, not as castles or places of defence, but as residences, and from this period modern ideas of domestic economy gradually transformed house planning. Sutton Place (A.D. 1521–1527), near Guildford, is one of the earliest examples of a non-castellated domestic residence.

A.D. 1520. Henry VIII. visited the French King, Francis I., at the Field of the Cloth of Gold; the King and the many knights who followed in his train returned imbued with the newly introduced Renaissance style as practised in France.

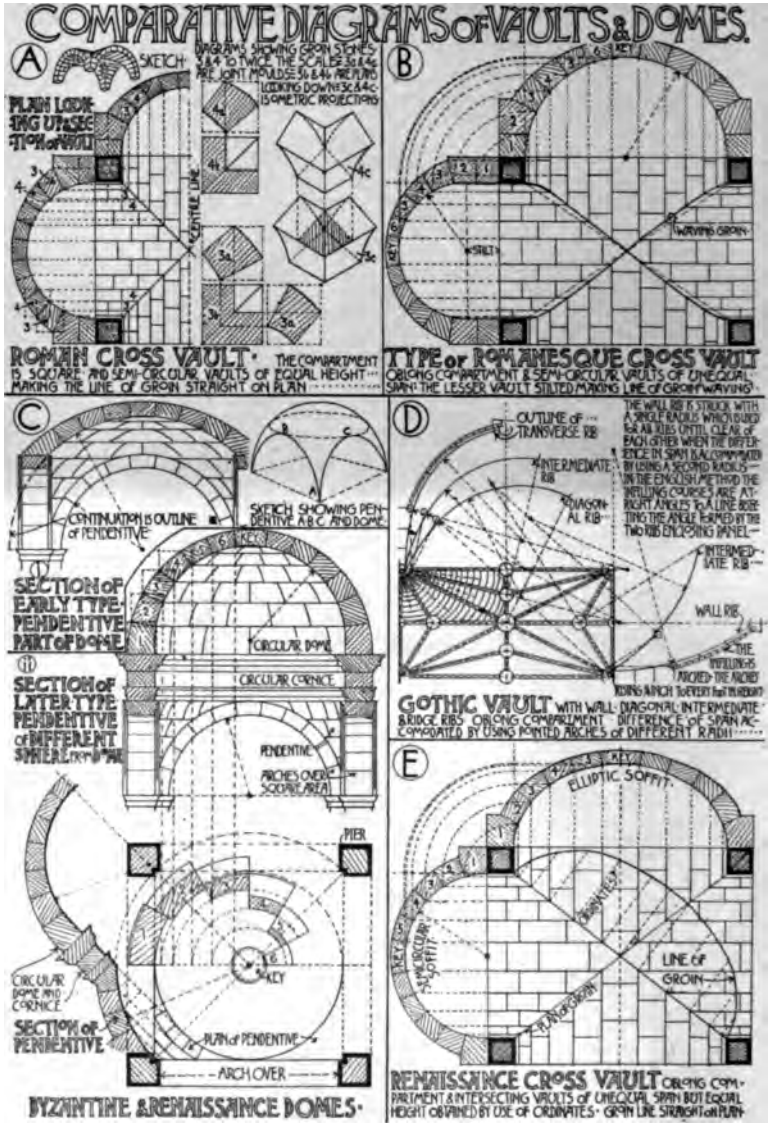
Girolamo da Trevigi, an Italian, was appointed Court Architect. Henry VIII. also encouraged foreign artists, amongst whom was Hans Holbein, an accomplished painter and designer, not only of portraits, but of goldsmith's work and woodwork.

These and various other causes led to the great Renaissance movement, which is referred to under the head of "Renaissance" (page 304).

## 2. ARCHITECTURAL CHARACTER.

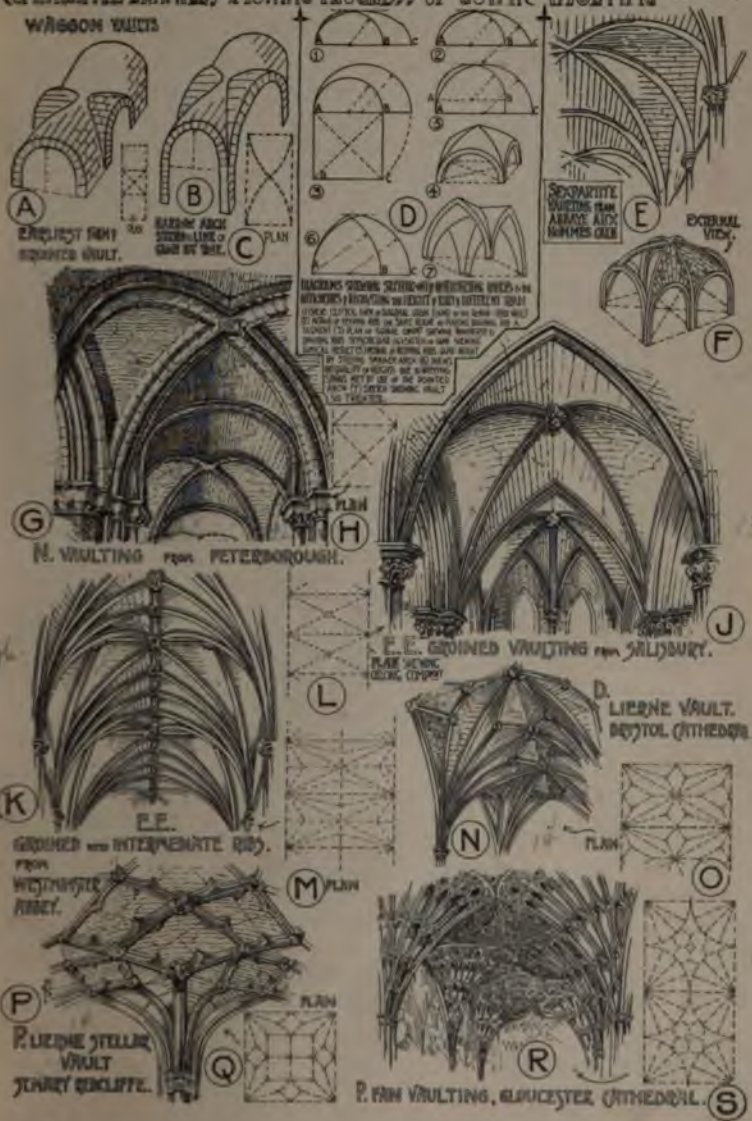
The student should read as to the architectural character of Gothic architecture in Europe (page 184).

The development of architecture, during the Middle Ages, is marked by a more complete sequence of style than upon the continent. The Gothic style terminated in a very national phase called the "Perpendicular," not elsewhere found. For special character of each period, see later, pages 227, 230, 234, 239, 243.


COMPARATIVE DIAGRAMS of VAULTS & DOMES.
A
SKETCH
DIAGRAMS SHOWING GROIN STONES 1,1A TO TWICE THE SCALE 1,1A,1C ARE JOINT MOULDS 1,1A,1C ARE PLANS LOOKING DOWN 1C,1A,1C ISOMETRIC PROJECTIONS
PLAN LOOKING UP & SECTION OF VAULT
CENTRE LINE
ROMAN CROSS VAULT · THE COMPARTMENT IS SQUARE AND SEMI-CIRCULAR VAULTS OF EQUAL HEIGHT MAKING THE LINE OF GROIN STRAIGHT ON PLAN
B
KEY
SKEW
WAVING GROIN
TYPE or ROMANESQUE CROSS VAULT
OBLONG COMPARTMENT & SEMI-CIRCULAR VAULTS OF UNEQUAL SPAN THE LESSER VAULT STILTED MAKING LINE OF GROIN WAVING
C
CONTINUATION IS OUTLINE of PENDENTIVE
SKETCH SHOWING PENDENTIVE ABC AND DOME
SECTION of EARLY TYPE PENDENTIVE PART of DOME
KEY
CIRCULAR DOME
CIRCULAR CORNICE
SECTION of LATER TYPE PENDENTIVE of DIFFERENT SPHERICAL RADIUS
PENDENTIVE
ARCHES OVER SQUARE AREA
PIER
CIRCULAR DOME AND CORNICE
SECTION of PENDENTIVE
PLAN of PENDENTIVE
ARCH OVER
BYZANTINE & RENAISSANCE DOMES·
D
OUTLINE of TRANSVERSE RIB
INTERMEDIATE RIB
DIAGONAL RIB
THE WALL RIB IS STRUCK WITH A SINGLE RADIUS WHICH IS USED FOR ALL RIBS UNTIL CLEAR OF EACH OTHER WHEN THE DIFFERENCE IN SPAN IS ACCOMMODATED BY USING A SECOND RADIUS — IN THE ENGLISH METHOD THE SPRINGING COURSES ARE AT RIGHT ANGLES TO A LINE BISECTING THE ANGLE FORMED BY THE TWO RIBS ENCLOSING PANEL
INTERMEDIATE RIB
WALL RIB
TIE
SPRINGINGS ARCHED THE REVERSE WAY TO EVERY RIB IN THE ROOF
GOTHIC VAULT WITH WALL DIAGONAL INTERMEDIATE & RIDGE RIBS OBLONG COMPARTMENT DIFFERENCE OF SPAN ACCOMODATED BY USING POINTED ARCHES OF DIFFERENT RADII
E
KEY
ELLIPTIC SOFFIT
ORDINATES
SEMICIRCULAR SOFFIT
LINE OF GROIN
RENAISSANCE CROSS VAULT OBLONG COMPARTMENT & INTERSECTING VAULTS OF UNEQUAL SPAN BUT EQUAL HEIGHT OBTAINED BY USE OF ORDINATES · GROIN LINE STRAIGHT on PLAN

# ENGLISH GOTHIC EXAMPLES I.

## COMPARATIVE EXAMPLES SHOWING PROGRESS OF GOTHIC VAULTING



## Gothic Vaulting in England.

The problem which the mediæval architects had to solve was to vault, in stone, a church of the basilican type, the high wall in which were the clerestory windows, being retained for lighting purposes. They thus crowned the church with a fire-resisting covering over which a wooden roof was placed in order to protect it from the weather. In connection with the necessity for counteracting the thrust of the vault, the greater part of the evolution of the constructive side of the style took place.

The essential difference between Roman and Gothic vaulting has been explained, and should be referred to (page 150). The first consisted entirely in the design of the vaulting planes or surface without reference to their meeting lines or groins, whereas Gothic vaulting consisted in profiling the groins which were erected first and supported the vaulting surfaces which were made to adapt themselves to them.

The evolution of vaulting in England, as on the Continent, involved the solution of a group of constructive problems which have been already hinted at under architectural character (page 184). The following may be taken as the main features of vaulting in each period, and are indicated in Nos. 83 and 84.

**Norman.**—The Roman system was in vogue up to the twelfth century, but the introduction of transverse and diagonal ribs in this period rendered it necessary to find a face mould for these ribs. In England the raising of the diagonal rib, which produced the domical method employed on the Continent, seems to have been but little used. The method was either (*a*) to make diagonal ribs segmental, as in the aisles at Peterborough Cathedral (No. 84 D, G); or (*b*) to make the diagonal ribs semicircular and stilt the springing of the transverse and longitudinal ribs. The next step was a great advance. This was the introduction of the pointed arch, firstly for the transverse and wall ribs only, the diagonal ribs (*i.e.* those with the longest span) remaining semicircular. Norman vaulting was either (*a*) cylindrical or barrel vaulting, as at the Tower of London (No. 104); (*b*) groined cross vaulting in square bays (No. 84 A); (*c*) other shapes in which the narrower vaulting arches were stilted (No. 84 B, C), or, in the later period, were pointed; (*d*) Sexpartite (six part) vaulting was occasionally used, as in the choir at Canterbury Cathedral, rebuilt by William of Sens in A.D. 1170. Two views of this type of vaulting at the Abbaye-aux-Hommes at Caen are shown in No. 84 E, F.

**Early English (Thirteenth Century).**—The pointed arch became permanently established, surmounting all the difficulties of

difference in span, and enabling vaults of varying sizes to intersect without stilting or other contrivances, as shown in Nos. 83 D and 84 J, L.

The cells, also known as "severies" or "infilling" were quite subordinate to the ribs and were of clunch or light stone in thin beds, resting upon the back of the ribs. These severies were of arched form, and so placed that their pressure was directed towards the piers and not the wall rib. Such cells often have winding surfaces, not being portions of regular solids. The "*ploughshare twist*," so called from its resemblance to a ploughshare, is caused by placing the springing of the window arch bordering on a vaulting compartment considerably higher, *i.e.*, stilting the springing of the vault. This was a common arrangement, and was necessary in order to leave greater height for the clerestory windows. The geometry of the Gothic system is a rough use of mathematical truths in which beauty is sought for, and not a strict regard for the exactitude of scientific demonstration.

The curvature of the ribs was obtained from arcs struck from one or more centres, and designed without reference to the curvature of adjoining ones, as is seen in the setting out of Gothic vaulting compartment (No. 83 D). In this lies the whole difference between the Roman and mediæval systems, for in Roman work the vaulting surface is everywhere level in a direction parallel to the axis of the vault, and any horizontal section of a spandrel or meeting of two cross vaults would be a rectangle. In the ribbed Gothic vault, however, the plan thus formed would have as many angles as ribs, varying according to the curve of the latter.

This period is principally known for the plain four-part ribbed vault which was primarily constructed as a skeleton framework of *diagonal* and *transverse* ribs. Examples of this treatment are the naves of Durham, Salisbury (No. 84 J, L) and Gloucester, and the aisles of Peterborough.

Later in the century intermediate ribs, known as *tiercerons*, were introduced between the transverse and diagonal ribs as seen in No. 84 K, M, which show the vaulting of the nave of Westminster Abbey, and were especially needed to strengthen the vaulting surfaces by decreasing the space between the ribs. In such cases *ridge ribs* were introduced in order to take the thrust of the *tiercerons* which abut at their summit at an angle, and would have a tendency to fall towards the centre of the compartment unless resisted by the ridge rib. In continental examples the ridge rib is often not continuous, but only extends to the last pair of arches which abut against it obliquely.

Ridge ribs are generally horizontal in English work and arched in continental work, and the "infilling" or "severy" has its

courses meeting at the ridge in zigzag lines as in South-West France. The nave of Westminster Abbey, and the naves and choirs of Lincoln, Exeter and Lichfield Cathedrals are examples.

A *wall-rib*, called "formeret," because forming a boundary for each compartment, was also introduced.

**Decorated (Fourteenth Century).**—During this period there was an increase and elaboration of intermediate ribs (tiercerons), ridge ribs, and a new set of ribs known as *Lierne* ribs, from the French *lien*—to bind or hold. The name "lierne" is applied to any rib, except a ridge rib, not springing from an abacus.

In the early plain-ribbed vaulting each rib marked a groin, *i.e.*, a change in the direction of the vaulting surface, but *lierne* ribs were merely ribs lying in a vaulting surface, whose form was determined independently of such surface, which however regulated their curvature.

These *liernes*, by their number and disposition, often give an elaborate or intricate appearance to a really simple vault (No. 84, N, O, P, Q). In consequence of the star-shaped pattern produced by the plan of such vaults, this type is often called "*Stellar*" vaulting (No. 84 Q). Examples of this type are to be seen in the choirs of Gloucester (A.D. 1337-1377), Wells, Ely, Tewkesbury Abbey nave, and the vaulting of Winchester Cathedral (No. 93 D, E, F), as carried out (A.D. 1390) by William of Wykeham.

The vaulting of this period therefore consisted of transverse, diagonal, intermediate, ridge and lierne ribs—in fact, a vault of numerous ribs, and of panels which become smaller and smaller until a single stone frequently spanned the space from rib to rib, and the vaulting is known as "rib and panel" vaulting.

**Perpendicular (Fifteenth Century).**—The complicated "stellar" vaulting of the fourteenth century led, by a succession of trials and phases, to a peculiarly English type of vaulting in this century known as *fan*, *palm* or *conoidal* vaulting, in which the main ribs have all the same curvature, forming equal angles with each other and connected at different heights by horizontal lierne ribs. The curvature of the main ribs is produced by the revolution of a hollow cone about its axis. The development was somewhat as follows: In the Early English (thirteenth century) period the form of an inverted four-sided hollow rectangular pyramid was the shape given to the vault. In the fourteenth century the masons converted this shape, by the introduction of more ribs, into a polygonal (hexagonal) pyramid, as in S. Sepulchre, Holborn, and elsewhere.

In the fifteenth century the setting out of the vault was much simplified by the introduction of what is generally known as "Fan" vaulting, and described above (No. 84 R, S). Owing to the reduction of the size of panels, due to the increase in the number of the ribs, a

return was made to the Roman method of vault construction, for in fan vaulting the whole vault is often constructed in jointed masonry, the panels being sunk in the soffit of the stones forming the vault instead of being separate stones resting on the backs of the ribs. In some "perpendicular" vaults the two systems are found, as at King's College Chapel, Cambridge, in others, as Henry VII.'s Chapel, Westminster, the whole vault is of jointed masonry. The solid method seems to have been adopted first in the crown of the vaults where the ribs were most numerous.

The difficulty of supporting the flat lozenge-shaped space in the top portion of the vault surrounded by the upper boundaries of the hollow cones was comparatively easy in the cloisters, where this type of vaulting was first introduced, because the vaulting spaces to be roofed were square or nearly so, but when it was attempted to apply it to the bays of the nave, which were generally twice as long transversely as longitudinally, difficulties appeared. In King's College Chapel the conoid was continued to the centre, its sides being cut off, which formed an awkward junction transversely. In the nave of Henry VII.'s Chapel pendants supported by internal arches were placed away from the walls and the conoids supported on these, thus reducing the size of the flat central space, and changing it from an oblong to a square on plan. At Oxford Cathedral a somewhat similar method is adopted, the pendants also placed some distance from the wall, being supported on an upper arch, and a polygonal form of ribs adhered to.

Fan vaulting is confined to England, and among the best known examples are King's College Chapel, Cambridge; Winchester Cathedral, nave and aisles; Henry VII.'s Chapel, Westminster; Trinity Church, Ely; Gloucester Cathedral, choir and cloisters; Oxford Cathedral, choir; St. George's Chapel, Windsor; the retro choir, Peterborough.

*The depressed four-centred arch* (No. 256 M) is typical of the architecture of the Tudor period, although it seems to have been used in the vaulting of earlier churches (No. 83 D). It is not found out of England, and appears to have been first used largely in fan vaulting, to which the reason for its adoption is held to be due. For example, if the diagonal rib in a fan vault is to be *a pointed* two-centred arch, each arch must obviously be less than a quadrant, and the transverse and wall ribs being shorter, must be considerably less than quadrants, especially if the compartment is very oblong. This would make the window arch in the nave wall of acute lancet form, but the window arch was made equilateral or even less in height compared to its span in this period, and so the segments of a diagonal arch of two centres preserving the

same curvature would not meet at their summit without becoming horizontal or possibly bending downwards to each other. To obviate this the transverse and diagonal ribs in an oblong compartment were sometimes made as four-centred arches, all the ribs starting with the same curvature, but at a certain height the portions above this level were drawn with a longer radius in order that they might meet the ribs from the opposite side of vault at the required height. These four-centred arches were afterwards applied to other parts of the buildings in England, as in arches to doors and windows, tracery work in panelling, etc., possibly with a desire to harmonize with the important superstructure of vaulting.

**"Pendant" vaulting** is a later form often used in connection with fan vaulting. In these, pendants as elongated voussoirs are dropped from a constructive pointed arch, which, at Henry VII.'s Chapel and Oxford Cathedral, is concealed above the vaulting. Such pendants form abutments to support the pendant conoids.

Examples of "pendant" but not of "fan" vaulting are frequent in the Flamboyant period (fifteenth century), in France as at Caudebec.

**Chapter Houses.**—Specially characteristic of English Gothic are the polygonal Chapter Houses used by the Cathedral Chapters. Those at Lincoln, A.D. 1225; Salisbury, A.D. 1250; Westminster, A.D. 1250; Wells, A.D. 1292, have vaults supported centrally on a column and by the surrounding walls. The Chapter House at York, A.D. 1280–1330, has no central pier, but is crowned by a wooden dome 57 feet in diameter. Worcester Cathedral has a circular Chapter House.

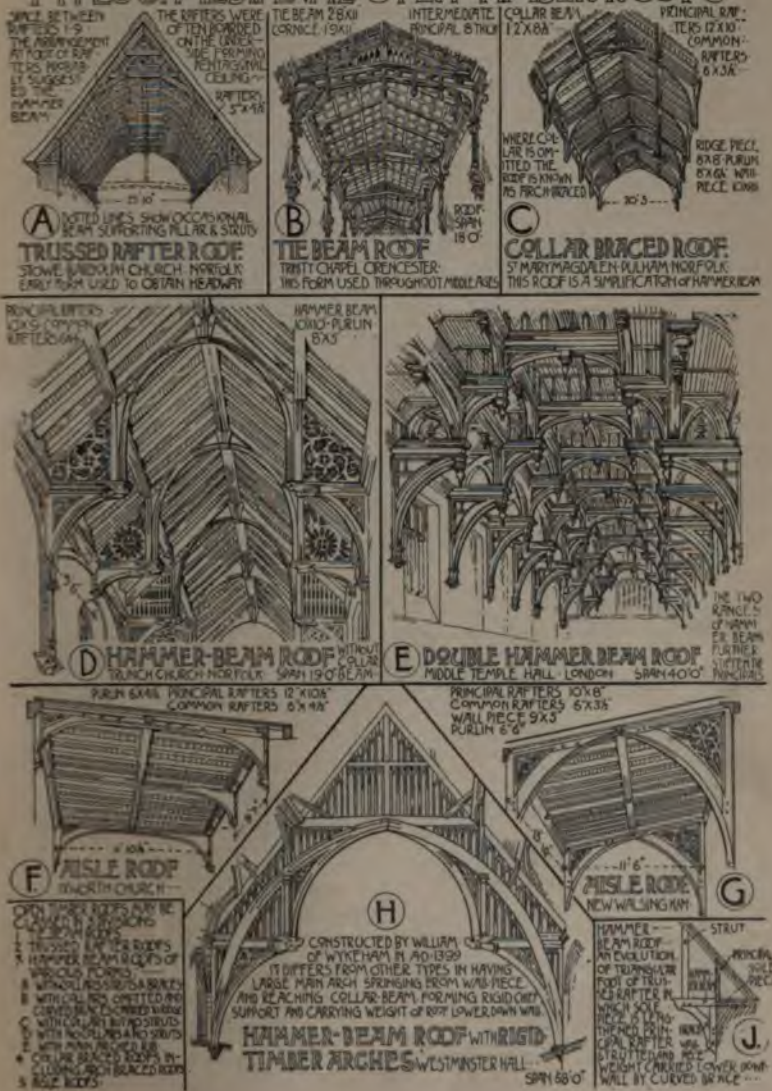
**Bosses.**—The use of bosses, or ornamental keystones, which form such decorative features in Gothic vaulting, was a constructive necessity, primarily used to cover the awkward junction of the ribs in order that the mouldings might be hidden behind the ornament of the boss, as they would not mitre properly, but would intersect in a very awkward manner, the various ribs meeting at all angles but a vertical plane.

## OPEN TIMBER ROOFS OF THE MIDDLE AGES, WITH SPECIAL REFERENCE TO ENGLAND.

The open timber roofs of the Middle Ages may be classed in the following five divisions, and are illustrated on No. 85:—

(1.) Tie-beam Roofs.
(2.) Trussed rafter or single-framed Roofs.
(3.) Hammer-beam Roofs of various forms.
(4.) Collar-braced Roofs, including arch-braced roofs.
(5.) Aisle Roofs of several forms.

# TYPES OF MEDIÆVAL OPEN TIMBER ROOFS.



(1.) The "TIE-BEAM ROOF" is the earliest form of which we have any record, and is the simplest in construction, being merely two rafters pitching one against another with the tie-beam inserted, holding their lower portions to counteract the outward thrust on the walls. This was probably the only form known at the Norman period, and it was never entirely discarded by mediæval builders, being used in every succeeding style (No. 85 A, B). In the early examples, the beam is merely pinned to the wall-plate at either end and unconnected with the rafters. Various methods were afterwards adopted in order to make the truss harmonize well with the other features. The tie beam was rarely straight, being nearly always cambered, in the later examples this camber gave the pitch of the roof, the purlins resting immediately on the beam, as at Wellingborough Church. Curved braces were often inserted, connecting the tie-beam with wall-pieces (No. 85 B), the whole being framed together and giving the favourite form of the arch, as at Outwell Church. In roofs of steeper pitch the open space above the tie-beam was filled in with perpendicular strutting or carved open work, as at Outwell Church, Norfolk. A pillar or king-post and struts were often *supported* on the tie-beam to strengthen the rafters, which gave a pleasing effect, as at Swardstone Church and also as shown in No. 85 A, B. This is an inversion of the use of king-post and tie-beam as adopted in modern roofs, in which the former acts as a suspending piece. A timber arch was sometimes introduced, springing from a wall-piece below the tie-beam, but as the tie-beam always intersected this the result, as seen at Morton Church, Lincolnshire, and elsewhere, was not satisfactory, somewhat clumsy.

(2.) The "TRUSSED RAFTER OR SINGLE-FRAMED ROOF," of which we still have many examples, was probably chosen for the purpose of gaining headway, as over vaults, and having once been used the superiority of its construction and appearance led to its being largely substituted for the tie-beam form. In roofs of large span each rafter had a collar stiffened by braces, which were sometimes passed through the collar, as at Lympenhoe Church, Norfolk, and sometimes stopped on the underside, as at Stowe Bardolph Church (No. 85 A). This type of roof was often boarded on its underside, forming a pentagonal ceiling ornamented with ribs and bosses, as at St. Mary's, Wimbotsham, Norfolk. The timbers are halved and held together with wooden pins. As the rafters pitched on the outside of the wall a ledge was formed on the inside, and to remove this hollow and unsightly appearance an upright strut was introduced, forming a triangular foot (No. 85 A). This greatly added to the stability of the roof, and is held to be the

obvious origin of the hammer-beam (No. 85 J). The arched form was obtained by the use of curved braces fixed to the rafters and collar, as at Solihull Church.

(3.) The "HAMMER-BEAM" roof is, as stated, considered to be a natural evolution of the triangular framing adopted at the foot of the trussed rafter roof (No. 85 A), and consists generally of hammer-beam, struts, collars and curved braces, as shown in No. 85 D, E, H, J. The hammer-beam is merely the lengthening and thickening of the "sole-piece" at the foot of the trussed rafter (No. 85 J), the principal rafter being strutted, and the weight of the roof carried lower down the wall by means of a curved brace tenoned into the hammer-beam and wall-piece. Being thus strengthened, it forms a truss which supports the intermediate rafters of the bay, being spaced at intervals of 10 feet or more.

It has been supposed by some that the hammer-beam arose from the cutting away of the tie-beam in the centre when a curved brace is used beneath the tie-beam. It is improbable, however, that this was the origin, and there is little more resemblance between a hammer-beam roof and a tie-beam roof than consists in their both being double framed, *i.e.*, both having principals or trusses placed at regular intervals, as opposed to the trussed rafter type, which has no principal. Moreover, the tie-beam was used in all types of roof, even in conjunction with the hammer-beam itself, as at Outwell, where the intermediate principals are supplied with hammer-beams; this is a late example, and was probably constructed after the hammer-beam type had attained perfection. Hammer-beams were not constructed until the end of the fourteenth century, and were not in general use until the fifteenth century. Westminster Hall is the earliest recorded example, A.D. 1399 (No. 85 H).

There are many varieties of this form of roof:—

(*a.*) Those with hammer-beams, struts, collars and curved braces, as Little Welnetham Church, Suffolk. (*b.*) Those in which the collar-beam is omitted and curved braces carried to the ridge, the apex being framed into a wedge-shaped strut, as at Trunch Church, Norfolk (No. 85 D). (*c.*) Those with collar-beams and no struts but curved braces, in which a shorter hammer-beam is used, as Capel St. Mary's, Suffolk. (*d.*) Those with no collars and no struts, curved braces only being used from ridge to hammer-beam, as at Palgrave Church, Suffolk. The arch-braced roof is the outcome of this latter form. (*e.*) Those with a main arched rib springing from wall-piece and reaching to a collar, forming a rigid chief support, as at Westminster (No. 85 H) and Eltham.

Double hammer-beam roofs have two ranges of hammer-beams, as at St. Margaret's, Ipswich, and Middle Temple Hall (No. 85 E), the object of the second range being to further stiffen the principals and convey the weight on to the first range and thence to the wall. They usually occur when the pitch is flatter, but the effect is more complicated and less pleasing.

These are the main divisions, but there are various minor modifications of the type.

(4.) "COLLAR-BRACED ROOFS" are a simplification of the hammer-beam form, and include arch-braced roofs, so called when the collar is omitted and the arched brace carried up to ridge. This form is very like that constructed nearly a century earlier, as at Tunstead Church, but with the important difference that at Tunstead the braces are of the same thickness as and appear to form part of the principal rafters, whereas the collar-braced kind are not more than 4 inches thick, while the principals may be about 10 inches. Pulham Church, Norfolk (No. 85 C), is an example of this collar-braced form. Brinton Church is another example of the arch-braced type. The curved braces answer the double purpose of strengthening the principals and carrying the weight lower down the wall, which they also help to steady.

(5.) AISLE ROOFS in the early period were merely a continuation of the rafters of the nave. At North Walsham, Norfolk (a tie-beam roof), the tie-beam of the aisle is carried through the wall, forming a corbel for the wall-piece of the nave roof, thus binding the whole together. Aisle roofs were usually simple, intermediate trusses being introduced to strengthen the purlins. When they were gabled they were usually of low pitch, and the hammer-beam was rarely introduced for these. New Walsingham Church (No. 85 G) and Ixworth Church (No. 85 F) are good types of aisle roofs.

## 3. EXAMPLES.

*Note.*—For review of each style separately, see Prefatory Note,[1] (page 227). The student is referred to page 210 for remarks on the various types of buildings erected during the Middle Ages.

[1] The mediæval architecture of England being divided chronologically into periods of approximately 100 years each, the characteristics of each of these periods are given as follows: Anglo-Saxon, page 227; Norman, page 230; Early English, page 234; Decorated, page 239; Perpendicular, page 243.

COMPARATIVE VIEWS OF MODELS OF ENGLISH CATHEDRALS.



A. CHICHESTER.



B. DURHAM.



C. ELY.



D. WORCESTER.



E. ROCHESTER.



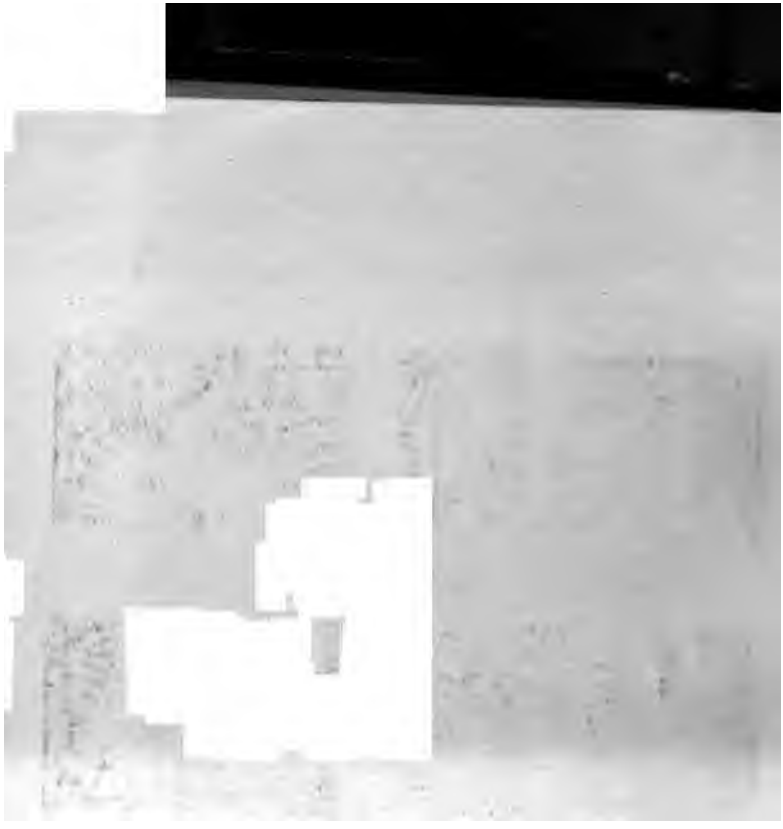
F. OXFORD.



G. CARLISLE.



H. BRISTOL.



COMPARATIVE VIEWS OF MODELS OF ENGLISH CATHEDRALS.



A. YORK.



B. CHESTER.



C. PETERBOROUGH.



D. EXETER.



E. WINCHESTER.



F. HEREFORD.



G. WELLS.



H. GLOUCESTER.



COMPARATIVE VIEWS OF MODELS OF ENGLISH CATHEDRALS.



A. SALISBURY.



B. LINCOLN.



C. CANTERBURY.



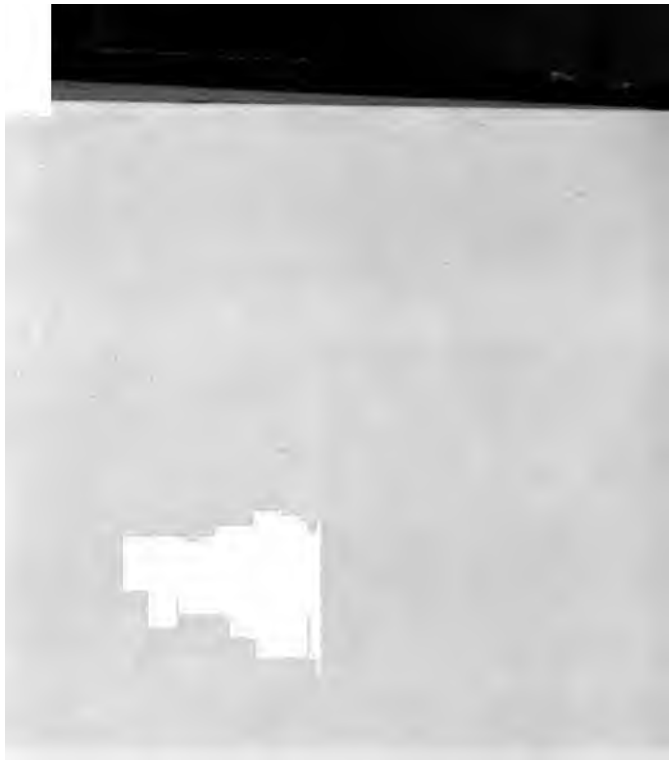
D. NORWICH.



E RIPON.



F. LICHFIELD.



## CATHEDRALS.

Also see under General Introduction to Gothic Architecture (page 189), which should be read by the student.

The constitution and foundation of English Cathedrals is important and is largely responsible for their monastic character and general arrangement.

They may be divided into three classes: —

(*a.*) Cathedrals of the Old Foundation.

(*b.*) Cathedrals of the Monastic Foundation.

(*c.*) Cathedrals of the New Foundation.

(*a.*) The Cathedrals of the old foundation are those which, being served by *secular* clergy, were not affected by the reforms of Henry VIII. The following is a list: St. Paul's, London, York, Lichfield, Wells, Exeter, Salisbury, Chichester, Lincoln, Hereford, and the Welsh Cathedrals of Llandaff, Bangor, St. Davids, and St. Asaph.

(*b.*) The Cathedrals of the monastic foundation are those which were originally served by *regular* clergy or *monks*, and which were reconstituted at the dissolution of the monasteries as chapters of secular canons. The following is a list: Canterbury, Durham, Rochester, Winchester, Worcester, Norwich, Ely, Carlisle, Peterborough, Gloucester, Chester, Oxford, and Bristol. Westminster Abbey was a Cathedral Church from A.D. 1540–1545.

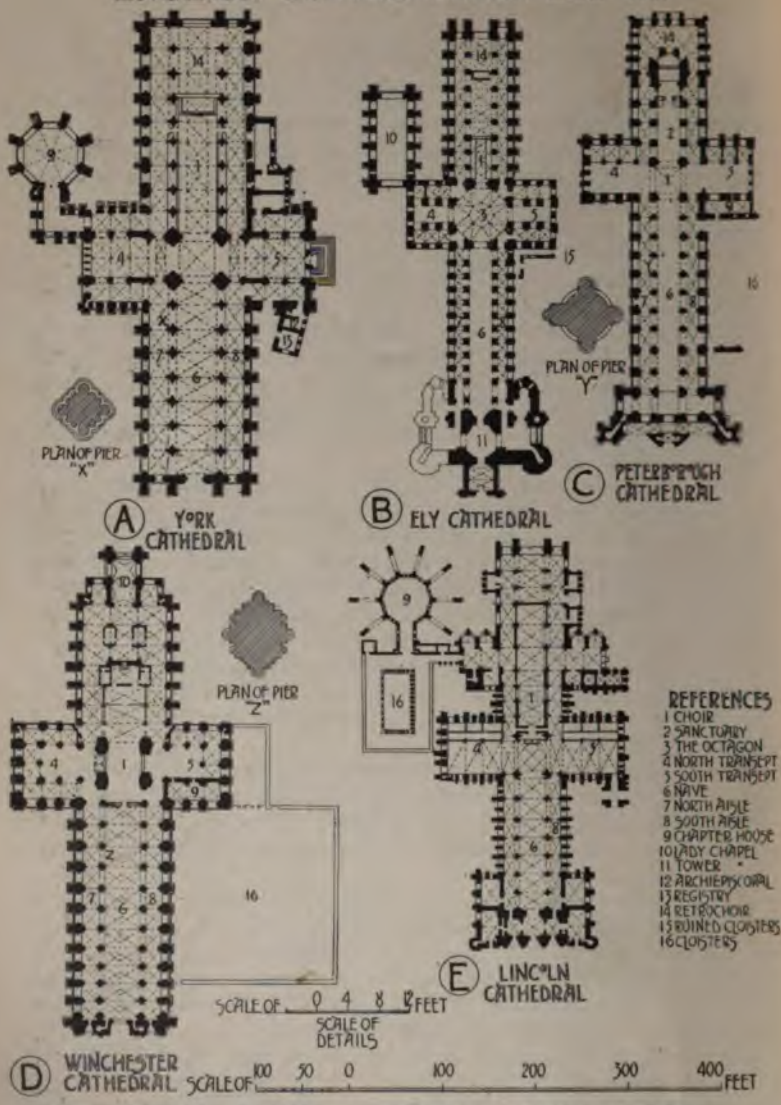
When the change in these monastic establishments was made the abbot became the bishop, the prior the dean, and the monks became canons and choristers; the *personnel* generally remaining the same.

(*c.*) Beyond these, bishops have been appointed to Ripon and Southwell, which are old Collegiate Churches, and to the following Parochial Churches: St. Albans, Newcastle, Wakefield, Manchester, and Truro, which thus have become Cathedrals on the new foundation.

The *character* which each Cathedral possesses generally shows its original purposes. Monastic Cathedrals are nearly peculiar to England and Germany, whereas the French Cathedrals were mostly erected in the thirteenth century by funds provided by the laity and not as part of monastic establishments, hence the absence of cloisters, refectories, chapter houses, dormitories, scriptorium, library, guest hall, infirmary, and other buildings, such as wine cellars, which form the collection of buildings attached to a monastic establishment (see Nos. 89 and 120, for English Cathedral plans).

Most of the English Cathedrals were founded or remodelled after the Conquest, including many which formerly served as

# ENGLISH GOTHIC EXAMPLES III.

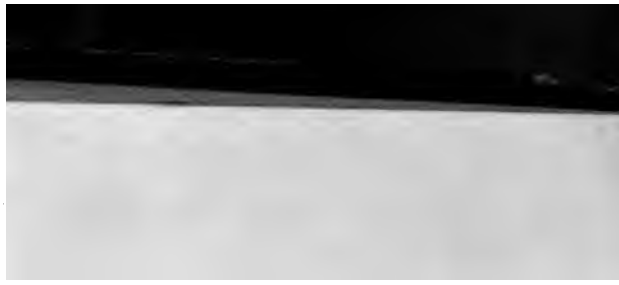



## COMPARATIVE PLANS OF ENGLISH CATHEDRALS



90. SALISBURY CATHEDRAL, FROM THE N.E.

Early Gothic
1150-1300



churches to the great monastic institutions of that period. The Welsh (except St. Davids), Irish, and Scotch Cathedrals, and the Collegiate Churches of Lichfield, Ripon, Manchester, Southwell, and York, had no cloisters. Cloisters in Cathedrals of the old foundation, as at Salisbury and Wells, were an ornament and not a necessity, whereas in monastic foundations they were needed for the use of the monks. Apsidal chapels are rare, but occur at Westminster, Canterbury, and Norwich, where French influence prevailed.

Thus it may be stated that the English Cathedral plans are peculiar in retaining many conventual features, as cloisters, libraries, etc. The plans were long and narrow, the choir being often nearly of the same length as the nave; square eastern terminations were usual; secondary transepts were frequent, as at Canterbury, Salisbury, Lincoln, Wells, and Worcester. The Chapel of the Nine Altars at Durham, A.D. 1242–1290, is in reality an eastern transept.

## COMPARATIVE VIEW OF ENGLISH CATHEDRALS.

*Note.*—See Nos. 86, 87 and 88 for comparative views of models of the English Cathedrals.

***The characteristics peculiar to the leading cathedrals are here indicated. Those which were the churches of Benedictine monasteries are distinguished by an asterisk *.***

1. **Bristol Cathedral** (No. 86 H).—An Augustinian monastery. Rectangular Norman vaulted chapter house. Early English "Elder Lady Chapel." Decorated choir, A.D. 1306–1332. Modern nave in imitation thereof, by Street. Peculiar in having nave and aisles of nearly equal height, with lofty aisle windows, as in some German churches (*cf.* No. 133). There is thus an absence of the usual triforium and clerestory. Remarkable canopied wall recesses for monuments.

2. ***Canterbury** (No. 88 C).—A choir of singular interest, directed by William of Sens, in a style after French models, on the destruction of Anselm's Norman choir in 1170. On his death the work proceeded under William the Englishman. Note the singular contraction of the width of the choir, in order to preserve two ancient Norman chapels.

In plan this choir resembled the Cathedral at Sens.

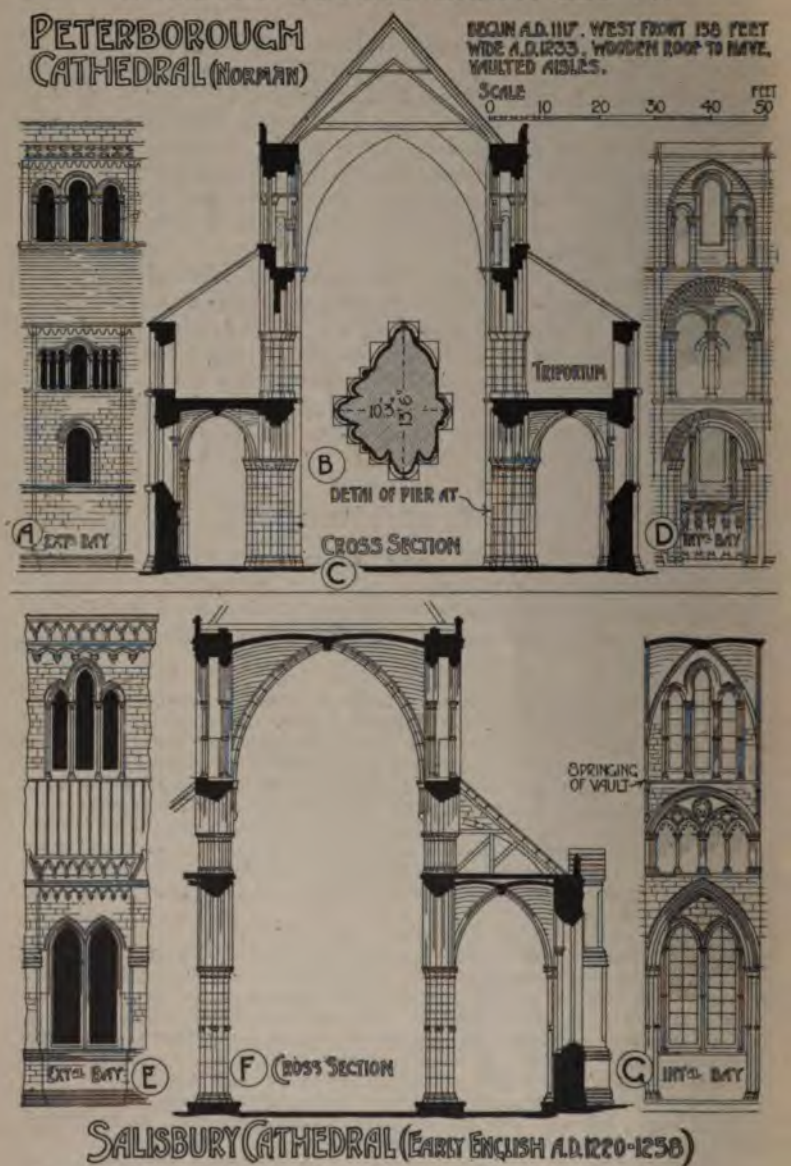
At the extreme east is the curious chapel called "Becket's Crown." Extensive crypts are under all the eastern portion. There are double transepts, the original Norman work being of singular interest. The splendid central tower, 229 feet high, is in the Late Perpendicular style. The nave, also late, is of lesser interest, and the west front and towers are unimportant, except in the general picturesqueness of the group. The chapter house is oblong, with fine wooden ceiling. The late cloisters are of great beauty, and are situate on the north side.

Large number of side chapels resembling Continental Cathedrals.

Total length, 545 feet; nave centres, 30 feet; nave within walls, 74 feet; length across transepts, 155 feet; west front, 120 feet.

3. **Carlisle** (No. 86 G).—Fragmentary. The east end a fine composition, containing the most perfect of tracery windows. An Augustinian Abbey.

# ENGLISH GOTHIC EXAMPLES IV.





92. SALISBURY CATHEDRAL. early english Gr
Nave, looking East. 1220-1258

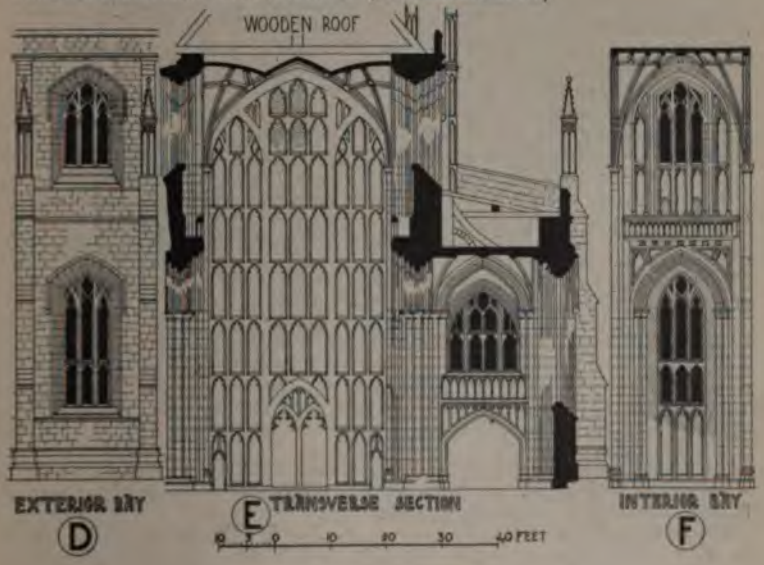


# ENGLISH GOTHIC EXAMPLES V.

## LICHFIELD CATHEDRAL (DECORATED)




## WINCHESTER CATHEDRAL (PERPENDICULAR)



4. *Chester (No. 87 B).—Originally the church of the Benedictine order of St. Werburgh. Built of red sandstone. Central and south-western tower. Cloisters on the north. Lady chapel at the extreme east end.

5. Chichester (No. 86 A).—The chief example of double aisles, really caused by the formation of lateral chapels. Fine central spire. Norman nave. The campanile is the only example of its kind belonging to an English Cathedral.

6. *Durham (No. 86 B).—"Grand and vast, that stands above the Wear" (Scott). Norman work (1096–1133). An eastern transept called the "Chapel of the Nine Altars," in massive Early English (1242–1290), and a central perpendicular tower, 216 feet high, harmonized as a group, for strength of outline and dignity have few, if any, rivals. Internally, the special point is the massive arcade of the Norman nave, the finest in England, the pillars about the same width as the openings, and quaintly channelled with characteristic spirals and flutes. The nave was vaulted 100 years later, but in such a manner as to harmonize.

7. *Ely (Nos. 86 C, 89 B, 105 A, D and 106 F).—Norman nave, with timber roof and modern paintings. Transepts Early English. Choir remarkable for splendid carving. Most noted feature is the unique octagon, 70 feet in diameter, by Alan of Walsingham, in 1322, replacing the fallen central tower. It has a rich vault of wood only, reaching to a central octagonal lantern. The octagon sides are unequal on plan, viz., as 20 feet is to 35 feet. The plan resembles St. Paul's, London, which it inspired; see No. 212. Exceptional lady chapel, 100 feet by 46 feet, by 60 feet high; compare chapter house, Canterbury. The west front is an imposing composition (180 feet wide), owing to the bold tower, 243 feet high, and as wide as the nave, and flanked with bold transeptal projections, ended by big octagon turrets.

In front of the tower projects the Galilee porch, two square bays in plan, vaulted and elaborately arcaded.

Total length, 545 feet; nave centres, 39 feet; nave within walls, 73 feet; length across transepts, 180 feet; west facade, 175 feet (Plan No. 89 B).

8. Exeter (No. 87 D).—Small. East end a sheet of glass in rich tracery. Note the carved woodwork.

9. *Gloucester (No. 87 H).—Rich in early perpendicular vaulting. Norman choir cased in perpendicular work, as at Winchester. Cloisters of singular completeness, on the north side of Cathedral. Central tower, 225 feet high.

10. Hereford (No. 87 F).—In Norman style, with interesting additions of later periods.

11. Lichfield (Nos. 88 F, 93 A, B, C and 106 E).—Situated on slightly sloping ground; small, but complete with two western and central spires of rich and graceful character. Built in reddish stone. Special point, the clerestory windows of spherical triangular form. No cloisters.

12. Lincoln (Nos. 88 B, 89 E, 94 and 95).—Rebuilt 1185–1200. "Angel" choir, 1256–1314. Situated on the ridge of a steep hill dominating the town, in general outline resembles Canterbury. This Cathedral has also double transepts and noble central tower, the highest, excluding spire, in England (271 feet). "National Lincoln" sums up its greatest glory, and the student acquainted with Canterbury choir will see how the French feeling has passed out of the style. The cloisters are on the north side.

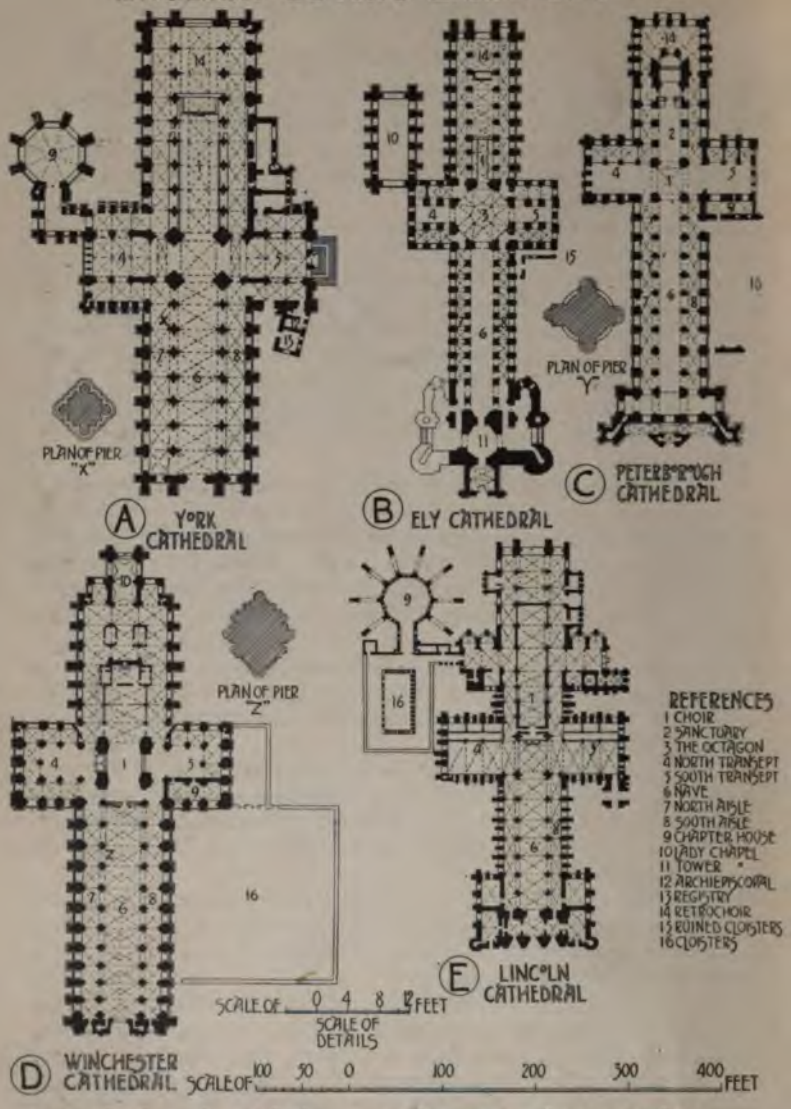
The central tower contrasts and compares with that of Canterbury. The decagonal chapter house, vaulted to central pillar, and surrounded by a ring of flying buttresses, is supposed to be of later date.

Total length, 520 feet; nave centres, 43 feet 6 inches; nave within walls, 80 feet; length across transepts, 180 feet; west façade, 173 feet.

13. Llandaff.—A long low building, without transepts or side chapels, situated at the foot of a hill. Two western towers. The nave is much restored. No triforium. Square chapter house with central pillar. No cloisters.



94. LINCOLN CATHEDRAL.—
East end and Chapter House.



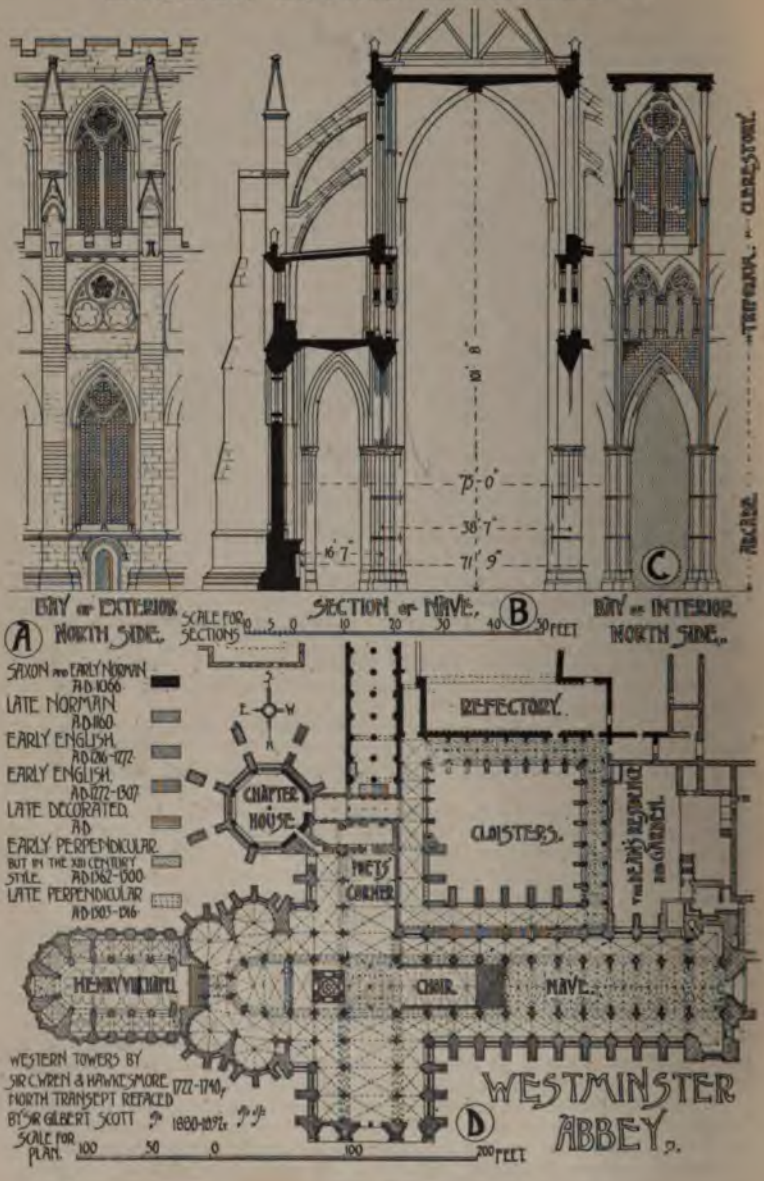

COMPARATIVE PLANS OF ENGLISH CATHEDRALS



90. SALISBURY CATHEDRAL, FROM THE N.E.

Transcat Gothic
1150-1300

# ENGLISH GOTHIC EXAMPLES VI.





97. Henry VII.'s Chapel, Westminster Abbey.

1500 Late English Gothic Flamboyant

Windsor



transept. The nave was completed in the fifteenth century in imitation of the older work. The western towers were completed in A.D. 1722, by Wren and Hawkesmoor. Henry VII.'s Chapel, added by Henry VIII. in the place of the former Lady Chapel, is remarkable for elaborate fan vault. In plan it consists of a nave, aisles, and five smaller apsidal chapels. The French feature of the *chevêt*, with apsidal chapels, is exceptional in England. Shrines, tombs, and monuments exceptionally fine. The cloisters, in usual position to the south of nave, have open tracery and elaborate vaulting of the Decorated and Perpendicular periods.

27. ***Winchester** (Nos. 87 E, 89 D, 93 and 106 G).—Great total length (560 feet) being the longest in England. Norman nave transformed by William of Wykeham in a vaulted perpendicular style. Compare Gloucester. Tombs and chantries. Wood vaulting to choir. Low central tower. Early Norman transepts.

28. ***Worcester** (No. 86 D).—A level situation on the banks of a river. Central tower (196 feet high) and fine eastern window. Circular Norman chapter house. Interesting monuments.

29. **York** (Nos. 87 A and 89 A).—Notable, firstly, for its superior scale, the width within walls being 106 feet—greater than that of any other. Note in north transept the "Five Sisters," lancet windows 50 feet high, each 5 feet wide. The transepts are of the Early English style and remarkable for the "classic beauty of their mouldings" (Street). The nave is Edwardian Gothic, the choir slightly later. Note that the vaults are of wood only; hence some serious fires have taken place. In spite of the size of this cathedral, it compares unfavourably with Durham, for grandeur, strength of outline, and grouping. No cloisters.

Total length, 520 feet; total width, 106 feet; width of nave centres, 54 feet; width across transept, 220 feet; west facade, 144 feet.

*Note.*—For a comparison between English and French cathedrals, which will enable a student to grasp more thoroughly their various characteristics, see pages 261.

## ENGLISH PARISH CHURCHES.

"The portals of the sacred pile
Stood open, and we entered. On my frame
At such transition from the fervid air,
A grateful coolness fell, that served to strike
The heart, in concert with the temperate awe
And natural reverence that the place inspired:
Not raised in nice proportions was the pile,
But large and massy, for duration built;
With pillars crowded, and the roof upheld
By naked rafters, intricately cross'd
Like leafless underboughs, 'mid some thick grove,
All withered by the depth of shade above.

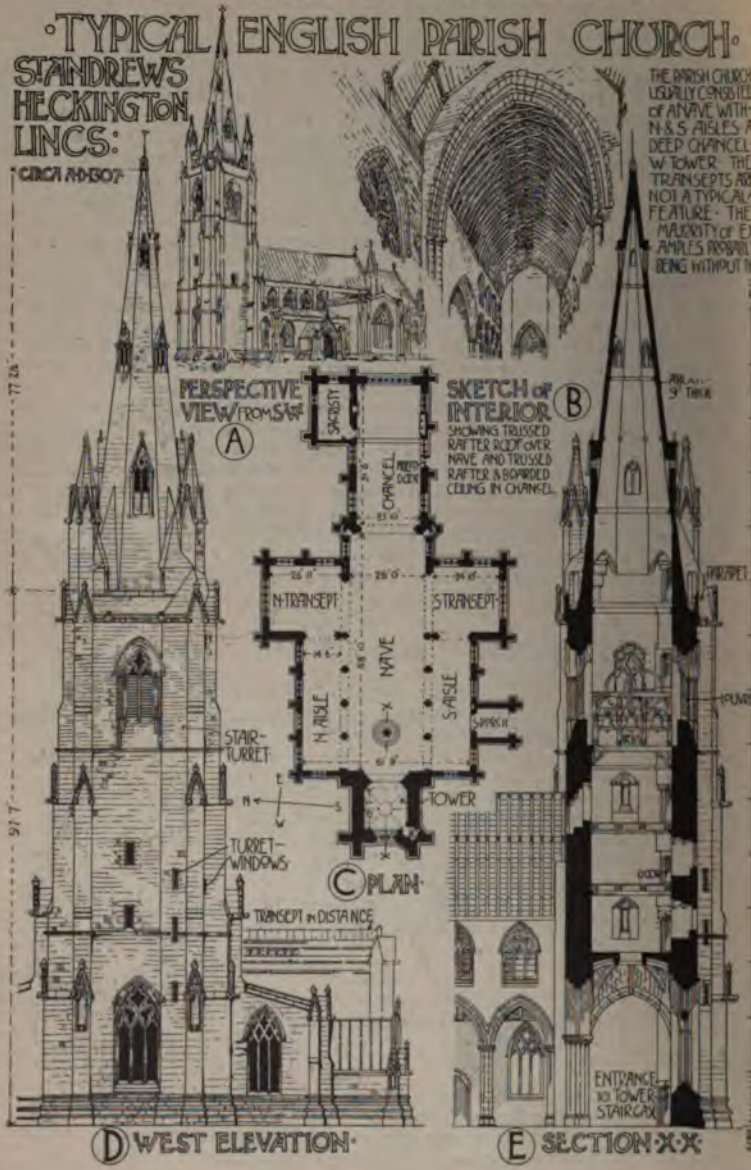
* * * * *

The floor
Of nave and aisle in unpretending guise,
Was occupied by oaken benches, ranged
In seemly rows;

* * * * *

And marble monuments were here display'd
Thronging the walls; and on the floor beneath
Sepulchral stones appeared, with emblems graven,
And footworn epitaphs; and some with small
And shining effigies of brass inlaid."—WORDSWORTH.

# TYPICAL ENGLISH PARISH CHURCH





99. Fan Vaulting, Henry VII. Chapel, Westminster Abbey.

Late Gothic 1430–1550



The *typical* Parish Church, such as St. Andrew's, Heckington (No. 98), was not of the cruciform plan, but consisted of a nave with aisles, clerestory with windows, and a long and narrow chancel without aisles. A considerable proportion were erected during the fourteenth and fifteenth centuries. There was generally a single western tower, finished with crenellated battlements, but in some of the larger Parish Churches, which are cruciform on plan, the tower is placed over the "crossing." Where a spire occurs it was usually octagonal on plan, and the change from the square to the octagon was effected in the thirteenth century by means of a "broach" resting on angle squinch arches, while in the following centuries, parapets and elaborate corner pinnacles and flying buttresses are employed to connect the tower and base of the spire (No. 98 D).

The principal entrance was by a porch, sometimes of two storeys, on the south side, near the west end, although occasionally the western tower emphasized the main entrance.

The typical English Parish Church differs from the French in not being vaulted. The English developed the "open-timbered" roof (see No. 85), and elaborate specimens of constructive art were indulged in, culminating in the "hammer-beam" variety of the fifteenth century. These were often painted with rich colours, and the counties of Norfolk and Suffolk are specially famous in this respect.

The examples of the various types of open-timbered roofing are shown on No. 85.

## THE CASTLES AND RESIDENCES OF THE NOBLES

form an important part of the architecture of the Middle Ages, and they were fortified up to the end of the fourteenth century. They were generally residences as well as military posts, thus, while complying with the ideas of defence, the planning of these castles also illustrates the system of the relation of the vassal to his lord, who, while exacting the former's service, was also theoretically bound to maintain him.

In the twelfth century, military structures were all-important, over 1,100 castles being constructed during the reign of Stephen alone. These consisted of (*a*) an outer "bailey" or court, (*b*) an inner bailey, and (*c*) the *donjon* or keep, several storeys in height; all being surrounded by a lofty wall with ramparts and parapet and a deep moat.

> "The battled towers, the donjon keep,
> The loophole grates where captives weep."—SCOTT.

Ex.: White Tower, London (A.D. 1081–1090) (No. 100 A).

# COMPARATIVE PLANS of ENGLISH DOMESTIC BUILDINGS



In the thirteenth century these castles were further enlarged by additional buildings, clustering round the keep, the hall still remaining the principal feature. Chimneys and large hooded fireplaces became general. The castles were less strongly fortified, as the growth of the royal power suppressed petty wars between rival nobles, while the later invention of gunpowder made the moat comparatively useless, and soon rendered quite obsolete the castle system of defence.

In the fourteenth century an increased desire for privacy arose, and the highest development of the *Hall* was attained. Compare these examples: **Westminster Hall,** a royal palace; **Ightham Mote,** a moated manor house; and **Crosby Hall,** an example of a merchant's home, referred to in Shakespeare's *Richard III.* as Crosby Place. Other examples are *Hever Hall, Kent* (a moated house), and *Cranbourne Manor, Dorset.*

**Penshurst Place, Kent** (No. 101 A, B, C, D, E, F), dating from the fourteenth century, is a good example of a nobleman's house, By referring to the plan (No. 101 F) it will be seen that, as in all domestic buildings of the fourteenth century, the Hall is the feature of primary importance. In this case it is 68 feet by 38 feet 8 inches by 48 feet high, with a raised daïs at one end and a screen at the other. An external view is given in No. 101 A. The roof (No. 101 B, E) is a fine example, and has a typical construction with octagonal post supporting the upper members of roof.

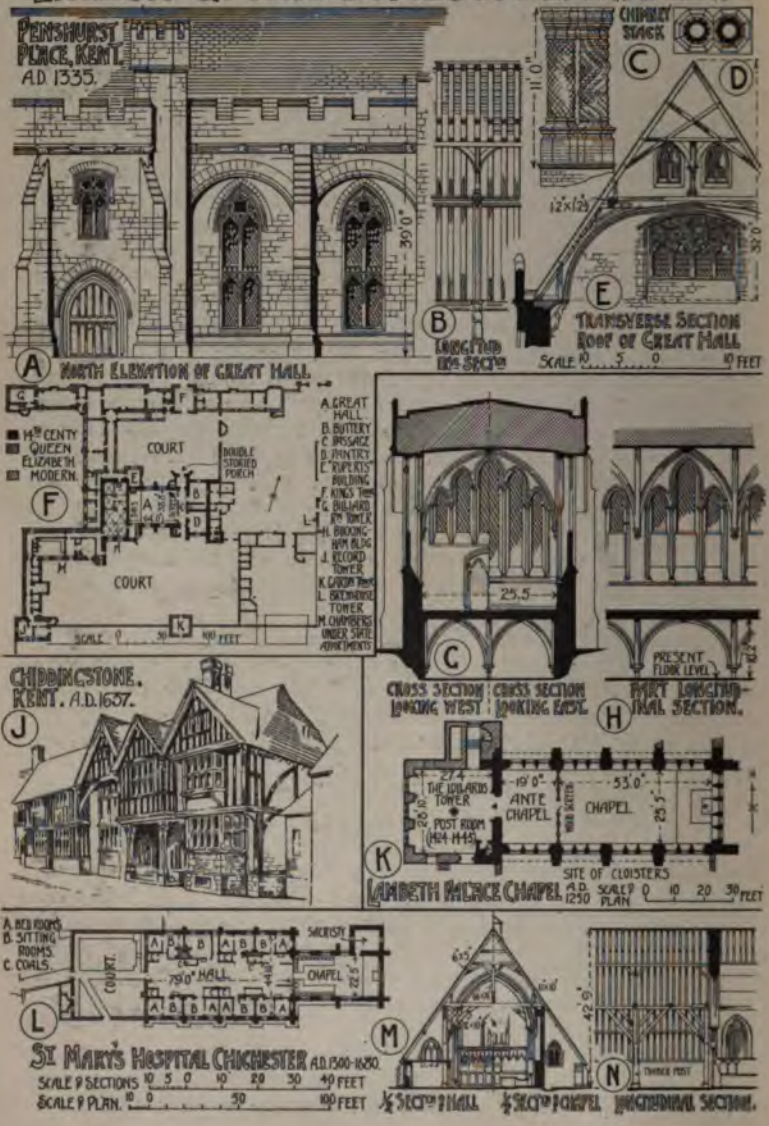
A characteristic house of the period consisted of a quadrangular plan with central courtyard. On the side away from the entrance was the Hall, the whole height of house and with the kitchen adjacent. The fire was in the centre of the Hall on "dogs," the smoke being carried away by the "louvre" in the roof or by a wall fireplace with a hooded canopy.

The general arrangement of the Hall was as follows:

The porch or doorway led to the entry or screens, which, by a panelled and carved partition, was separated as a vestibule from the hall itself. Over this entry was the minstrels' gallery, while at the further end of the Hall was the raised "dais," on which the master and his principal guests were seated. A large bay window, fitted with seats, gave external and internal importance to the daïs end. The main body of the Hall was occupied by the servants and retainers. The walls were hung with tapestry and with trophies of the chase. The Hall was often only strewn with rushes and still formed the sleeping-room for the retainers, who were often, however, lodged in dormitories in the wings. The "solar," or withdrawing-room, was often at right angles to the Hall.

ENGLISH GOTHIC EXAMPLES IX.

# ENGLISH GOTHIC DOMESTIC EXAMPLES.





102. St. George's Chapel, Windsor.
West Front.

Late Gothic
1400-1550

The use of the great banqueting-hall as the common sleeping-room gradually disappeared, on the introduction of the withdrawing-room. We see in this the germ of the modern country house, which in its highest development is an expression of the wants, inclinations, and habits of the country gentlemen of to-day, as complete as was the mediæval castle in the case of the feudal baron.

In the fifteenth century the central fireplace was moved to the side wall, becoming a distinctive feature, and the sleeping accommodation was much improved; a late example is Compton Wynyates, in Warwickshire.

In the beginning of the sixteenth century a typical house consisted of buildings grouped around a quadrangular court, as at Layer Marney and Sutton Place (A.D. 1521–1527). The entrance was in the centre of one side under a gatehouse, which gave it prominence; on the opposite side were the hall and offices; the living and sleeping-rooms were ranged along the other two sides, such rooms being "thoroughfare" rooms or only entered from the courtyard.

In the latter part of the sixteenth century the common dining-hall began to decline in importance, owing to modern ideas of privacy being introduced. The Elizabethan long gallery, approached by a large and characteristic staircase, usually of oak and replacing the previous winding turret staircase, became the predominant feature, as Haddon Hall (see No. 204).

For continuation of English House planning see English Renaissance.

## THE DWELLINGS OF THE PEOPLE.

The formation of towns was often due to considerations of safety, as when traders and others grouped themselves around the castles of the great nobles; or formed a dependency to a monastery; and thus arose hereafter in many towns two rival authorities, viz., ecclesiastical and secular. In the absence of effective police, and in the consequent insecurity against lawless vagabonds, every city was more or less fortified.

The undeveloped state of the towns is accountable for the absence of town halls, in contrast with France and Belgium, especially rich in these buildings.

In towns the dwellings often consisted of a shop on the ground floor, in which the trade of the owner was carried on, lighted by a wide arch giving on to the street. Behind the shop was the kitchen and living-room. An external door led to a staircase, which gave access to the sleeping-rooms on the first floor. The

"Butcher Row" at Shrewsbury, of the fifteenth century, has ground floor shops, "solar" above, and dormitories in the upper storey.

The architecture was more or less developed, in proportion to the condition of the owner, the materials at hand, and other local causes. In this respect the passage way on the first floor to the houses at [illegible] notable example. Houses of half timber and brick [illegible] ging upper storeys abounded, while the Jew's hous[illegible] is a fine example of an early stone residence.

[illegible]LS.

St. John's Cha[illegible] Tower [illegible]don (No. 104); St. George's Chapel, Wi[illegible] [illegible]ry VII.'s Chapel at Westminster (N[illegible] [illegible]s College Chapel, Cambridge, and many o[illegible] [illegible]ortance were erected, notably Christ Church Hall, Oxford, the Chapel of St. Stephen, Westminster (since destroyed to make room for Westminster Palace), and Merton College Chapel, Oxford, etc. The Archiepiscopal Chapel at Lambeth Palace (No. 101 G, H, K) is an excellent example of Early English architecture, the division of the windows as shown being typical of this period. The Lollards' Tower, or "Post Room," appears to have been erected between A.D. 1424–1445 by Archbishop Chichele.

## HOSPITALS, ALMSHOUSES AND BEDE HOUSES.

Many of these were founded by the charitable, and form interesting examples of semi-domestic character, principally dating from the fifteenth century. St. Mary's Hospital at Chichester (No. 101 L, M, N) is mainly of the fourteenth century, although belonging to a very early foundation. The bedrooms and sitting-rooms for the inmates open on to the central hall, at the end of which is the chapel. Other examples are St. Cross, Winchester; Ford's Hospital, Coventry; St. John's Hospital, Northampton; the Bede House, Stamford, and almshouses at Cobham, Kent, etc.

## ANCIENT TIMBER HOUSES.

These are still numerous, and the example from Chiddingstone (No. 101 J), dating about 1637, will give an idea of the appearance of these old timber houses, of which many towns and villages can still boast a number.

## MINOR MONUMENTS.

Many of these are worthy of careful study. In the cathedrals and churches, the choir screens, tombs, wall tablets, and chantries are specially notable.

# REVIEW OF EACH PERIOD SEPARATELY.

## PREFATORY NOTE.

The architecture of England during the Middle Ages can be divided into centuries corresponding to the principal developments, which have their specially defined characteristics.

There have been various systems of classification adopted by different writers, but those by Rickman and Sharpe are the best known. They are generally made to include periods corresponding to the reigns of English sovereigns, which are given under each style later.

A comparative table showing the approximate period covered by each is given :—

| *Dates.* | *Rickman.* | *Sharpe.* |
|---|---|---|
| Departure of Romans in 420 A.D. to the Conquest in 1066. | *Saxon.* | Saxon. |
| 1065–1189 (*i.e.* to the end of 12th cent.) ... | *Norman.* | Norman. / Transition. |
| 1189–1307 (*i.e.* the 13th cent.) ... ... | *Early English.* | Lancet. |
| 1307–1377 (*i.e.* the 14th cent.) ... ... | *Decorated.* | Geometrical. / Curvilinear. |
| 1377–1485 (*i.e.* the 15th cent.) ... ... | *Perpendicular.* | Rectilinear. |
| 1485–1558 (*i.e.* the first half 16th cent.)... | *Tudor.* | Tudor. |

Although we have defined the periods when each style may be said to stop and the next to begin, the student must remember that in reality no such thing could happen. The transition from one style to the next was slow and gradual, and can often hardly be traced, so minute are the differences. It may therefore be said that it is only for our own use and guidance, treating the matter broadly, that the division is made, for it must not be forgotten that the mediæval architecture of England is all one style.

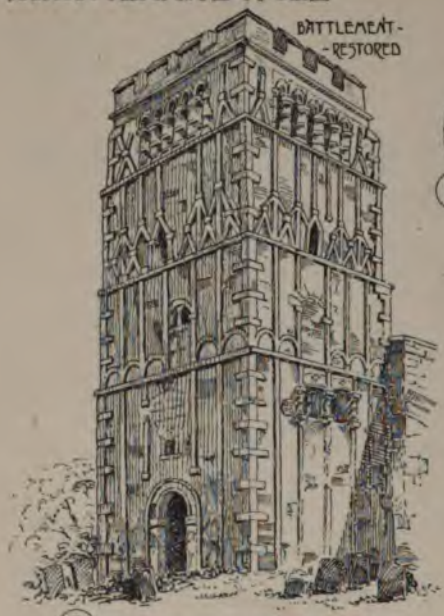
## ANGLO-SAXON STYLE (A.D. 449 to 1066).

### ARCHITECTURAL CHARACTER.

The buildings are sometimes composed of Roman remains in Britain, or of rude attempts at copying them. The scanty

# ENGLISH GOTHIC EXAMPLES X.

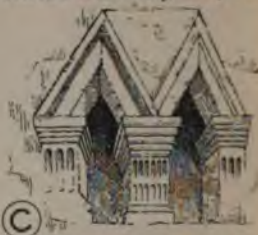
## SAXON ARCHITECTURE.



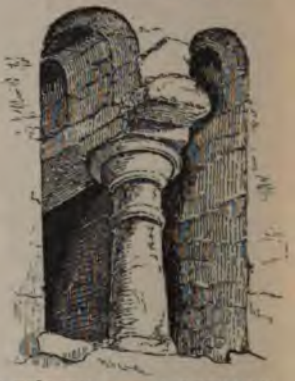

A TOWER, EARLS BARTON.



B WINDOW, EARLS BARTON.



C WINDOW, DEERHURST.



WINDOW FROM WICKHAM.



D DOORWAY, EARLS BARTON.



E CAP FROM REPTON.



G IMPOST FROM CORHAMPTON.



H CAPS FROM SOMPTING



F J CAPS FROM ST. BENET'S CAMBRIDGE.

remains of this period render it difficult to estimate the character possessed by the buildings. It is probable that timber was the material mostly employed in all classes of buildings, and we may believe that the great development in timber work of the later Gothic styles was due to this early use. The masonry work is considered by some to show signs of the influence of wood architecture, as in the "long and short" work, the triangular-headed openings, and the baluster mullions (see illustration, No. 103), but these features are rather rude attempts to copy the contemporary Romanesque work of Ravenna and other Italian towns.

## EXAMPLES.

Worth Church, Barnack Church, Brixworth (Northants), Dover, Earl's Barton (No. 103 A, B, D), Sompting (Sussex), (No. 103 H), Wickham (No. 103 F), Deerhurst (Gloucestershire) (No. 103 C), Greensted Church (Essex), and the crypt at Ripon Cathedral.

## COMPARATIVE.

A. **Plans** are naturally simple, and churches seem to have been planned as two oblongs, joined by a small chancel arch, the chancel being square-ended (borrowed from the Keltic type), lower and smaller than the nave, and distinctly marked as such externally and internally.

It appears that there was often a descent of a few steps from the nave into the chancel.

Another type of plan is that of the Roman basilican form, as at St. Martin's, Canterbury, and Brixworth.

Towers are without buttresses; of these there are few remains. Earl's Barton, Northants (No. 103), is an example.

B. **Walls** of rubble and rag stone, with ashlar at angles, in "long and short" courses, as at Earl's Barton (No. 103 A).

The characteristic features are rude work and rough materials.

C. **Openings** are round or triangular-headed, as at Deerhurst Church (No. 103 C), and sometimes divided by a rude baluster, as at York (No. 103 F). They have square jambs without recessed orders.

D. **Roofs.**—We have no means of knowing exactly how these were treated, as none exist, but they were probably either of timber or composed of loose stones in horizontal layers approaching each other till they met at the apex, as in early Irish examples. Manuscripts represent buildings as covered by slates or shingles.

E. **Columns.**—The rude balusters, that occur in belfry windows, have been mentioned above. They appear to have been worked by a lathe. Piers in churches are short, stumpy cylinders

Rude square ocks of stone occur in place of moulded capitals and bases (N 103 E, G).

F. Moul s are coarsely axed; they were few in number, and consiste f simple ovolos and hollows. Tools were few, hence the us the axe in roughly finishing the contours.

G. Ornan t.—Scanty, in the absence of technical ability at this period. ngings were probably in use.

(For a fea onquest Architecture, see R.I.B.A. 14, by Prof. G. Baldwin Brown, 1

ECTURE,

ALSO KNOWN LISH ROMANESQUE
OR TWELFTH C E, comprises the reigns of

William I., 1066–1
William II., 1087–1
Henry I., 1100–1135,
Stephen, 1135–1154,
Henry II., 1154–1189.

## ARCHITECTURAL CHARACTER.

The general appearance is bold and massive, and is well described by Sir Walter Scott:

> "In Norman strength, that abbey frown'd
> With massive arches broad and round,
> That rose alternate row on row
> On ponderous columns, short and low;
> Built ere the art was known,
> By pointed aisle and shafted stalk
> The arcades of an alley'd walk
> To emulate in stone" . . . etc.

## EXAMPLES.

**London:**

The keep and St. John's Chapel in the Tower of London (No. 104).

The round portion of the Temple Church (Transitional).

St. Bartholomew's the Great, Smithfield.

**Provinces:**

The Cathedrals of Norwich, Durham (1096–1133), and Oxford are Norman with the exception of their Gothic vaults.

The cathedrals of Gloucester, Exeter, Ely and Hereford have Norman naves with Gothic choirs.

Peterborough Cathedral is Norman with the exception of Gothic west front and retro choir.



104. S. John's Chapel, Tower of London.



Winchester Cathedral is a Norman building recased in the Perpendicular period.

St. Albans, Chichester, Waltham, and Tewkesbury are other examples.

Barfreston Church, Kent, is a good example of a small Norman church.

## COMPARATIVE.

A. **Plans.**—The nave is considerably lengthened from the Saxon period. Transepts are employed, with usually a tower at the crossing. Most of the cathedrals date from this period, and the general type of plan laid down is developed rather than changed. A desire for great length is noticeable, as at Norwich and Durham. The interior of the chapel of the Tower of London (No. 104) is admirably characteristic of the style.

The towers are square and massive, the later ones ornamented with arcading. Ex.: St. Albans Abbey and Iffley Church (No. 107).

In Norfolk and Suffolk are some fifty churches with round towers at their west end. Such towers are by some supposed to be due to Scandinavian influence, but are more probably the result of a local deficiency of freestone.

Castles, owing to the recent conquest, are numerous and important; they command fords on the rivers, high roads, and other strategic points. The Tower of London gives a good idea of the system of defence adopted (No. 100 A).

B. **Walls** are often constructed with defective masonry, the core being imperfectly bonded with the facing. Walls are very thick, and are often arcaded in later work.

The interiors have a nearly equal height assigned to nave arcade, triforium, and clerestory, and a passage was often formed between the clerestory wind w and the triple arch carrying the inside of the wall, a method also adopted in the churches at Caen.

Buttresses are broad and flat (No. 105 A, B).

Parapets are plain with projecting corbel under (No. 91).

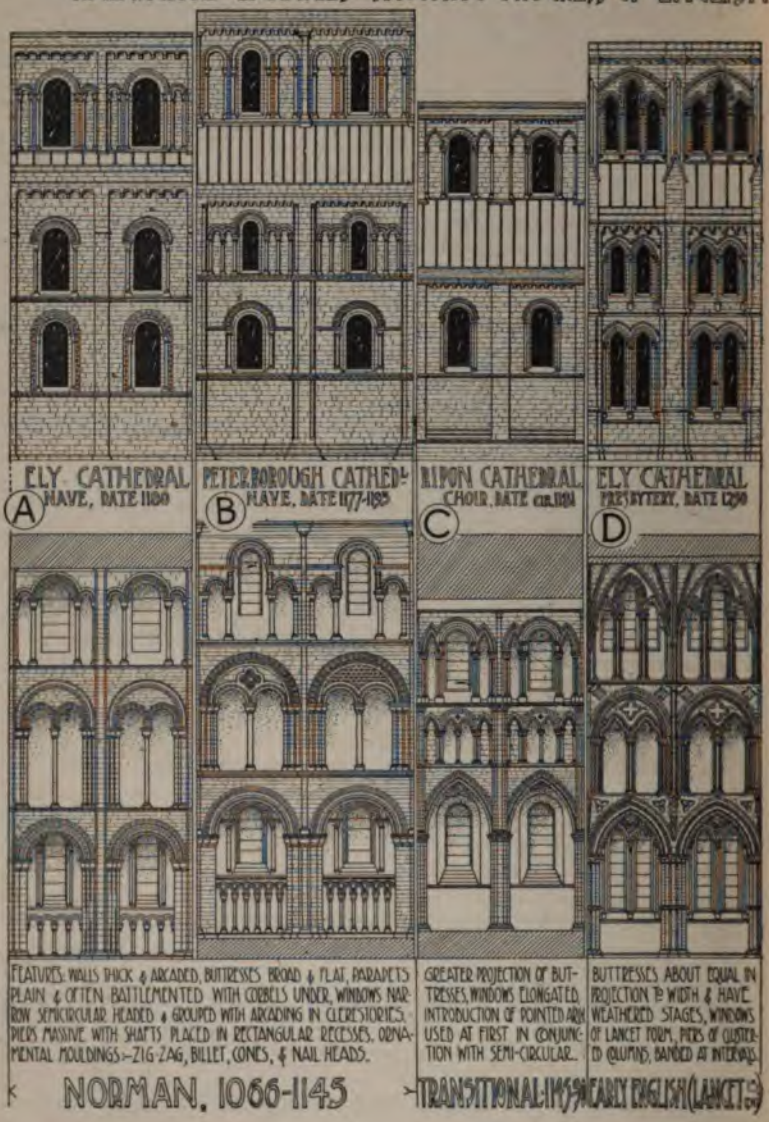
C. **Openings.**—Windows are narrow, semicircular-headed, and deeply splayed; they are grouped in three, or five, lights in clerestories (No. 105 A, B, 110).

Doorways are richly ornamented, being deeply recessed and ornamented with zigzag moulding and birds' heads, as at Iffley Church, Oxon (No. 107), or elaborately carved with subjects, as at Barfreston, Kent.

D. **Roofs.**—The vaulting is waggon-headed, or with simple intersections (No. 84 G).

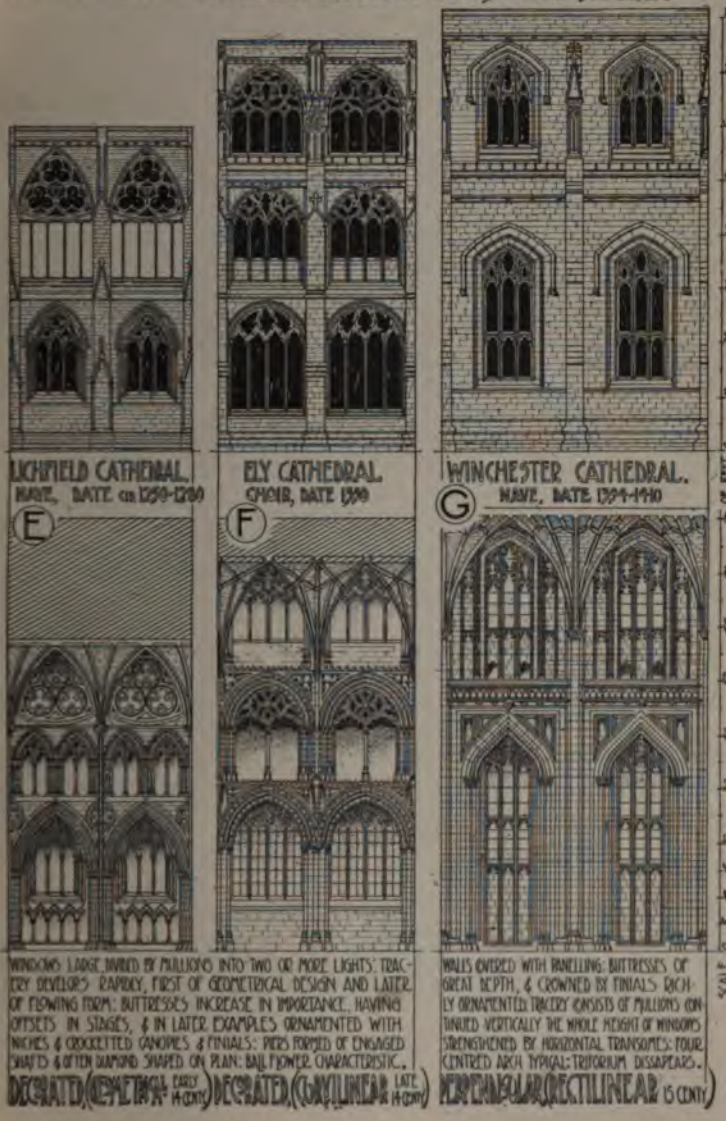
# ENGLISH GOTHIC EXAMPLES XI.

## COMPARATIVE EXAMPLES SHOWING PROGRESS OF ENGLISH



# ENGLISH GOTHIC EXAMPLES XII.

## GOTHIC CATHEDRAL ARCHITECTURE, AFTER SHARPE.



The roof-trusses are of open timber, chiefly of king-post form, generally of middle pitch, approaching forty-five degrees; the covering is of lead or shingles. The framing, of a simple character, is left exposed, or has a flat ceiling with boards, and is decorated. In fact, all the existing cathedrals or abbeys of this period had wooden ceilings, or, like Gloucester, Exeter, and Durham, were vaulted later.

E. **Columns.**—Piers are low, massive, and often polygonal in plan. Columns are massive, generally circular (No. 104), as at Gloucester, Bristol, and Exeter, with capitals crowned by a square abacus, the Corinthian type being rare in England. At Durham fluting and zigzag channellings are worked on the columns, without regard to the courses. Clustered piers, as at Peterborough (No. 91), with rectangular recesses, are also used, and often in conjunction with round piers, as at Durham and Waltham. The small shafts in doorways, etc., are richly ornamented.

F. **Mouldings.**—The Norman ornamented mouldings, as the chevron or zigzag, billet, beak-head, nailhead, bowtel, etc., are well shown on the comparative sheet (Nos. 108 and 112).

Capitals are of the cushion form (Nos. 112 and 113 A, B, C), and are sometimes carved or scolloped.

Corbel tables, supported by corbels or grotesques, constitute a crowning feature on walls, etc., to towers.

G. **Ornament.**—Later work is very richly ornamented with nailhead, corbel, billet, and other ornamented mouldings (No. 108).

Wall arcades of intersecting arches (No. 105 B), along the lower part of the aisle walls, constituted an effective dado decoration.

It is probable that hangings were employed in interiors. Simple and rough distemper decoration is employed on flat ceilings, etc. Black and white, or stripes in simple colours, form lozenges, etc., the effect being bold, and not unpleasing, as in the roof at Peterborough. In the later period stained glass began to be employed, the glass being chiefly white, small pieces being leaded together to form patterns, with the addition of brown lines.

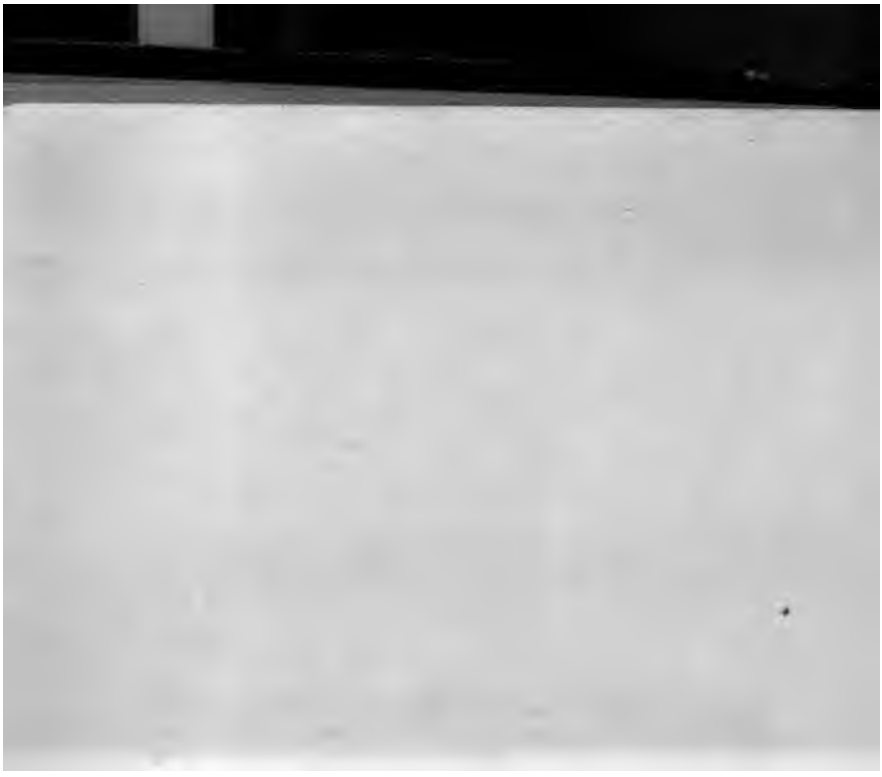
## THE EARLY ENGLISH STYLE,

ALSO KNOWN AS LANCET, FIRST POINTED, EARLY PLANTAGENET, OR THIRTEENTH CENTURY STYLE, comprises the reigns of

Richard I., 1189–1199,
John, 1199–1216,
Henry III., 1216–1272,
Edward I., 1272–1307.



107. Iffley Church, near Oxford.
West Front.



## ARCHITECTURAL CHARACTER.

The style of this period, shaking itself free from the massive but rude Norman, is magnificent and rich, strong in its dependence upon proportion, well-defined outline, and simplicity in decoration. The tall and narrow lancet openings give an upward tendency to the design. The long trails of dog-tooth ornament lurking in the dark furrow of some channelled recess, the foliaged capitals and bosses intruding their luxuriance upon the mouldings and hollows, and the knots of pierced and hanging leaves, extending like some petrified garland or bower of filigree work round the arch, almost impart life and vegetation to the very stones of these door and window openings. Boldly projecting buttresses and pinnacles, and steeply pitched roofs, mark the exteriors. Internally, in place of the massive Norman pillar, slender groups of shafts occur connected by bands to the piers. The pointed arch vaults have become more frequent, bolder and more elegant.

## EXAMPLES.

**London:**

Early. The round portion of the Temple Church, which may be called Transitional, between Norman and Early English.

Late. The Eastern portion of the Temple Church.

The choir, transepts, and first five bays of the nave of Westminster Abbey (1245–1269), and portion of the Cloisters, and the Chapter House, restored (No. 96).

The Chapel of Lambeth Palace.

The Choir, Lady Chapel, and nave (restored) of St. Mary Overie (St. Saviour's), Southwark.

**Provinces:**

Salisbury Cathedral, see page 217 (Nos. 90, 91, and 120 A), the transepts at York (No. 89 A), the nave of Lincoln (No. 89 E), Rochester (choir and transepts), Wells (nave and west front), Lichfield, and choir of Ely (No. 105 D).

## COMPARATIVE.

A **Plans** (Nos. 89 and 120) vary but little, in general setting out, from the Norman. The vaulting as it advances modifies planning, as, when pointed arches being finally adopted, nave compartments are made oblong in place of the former square divisions. Flying buttresses are introduced.

The "broach" spire, in which the upper portion rises from the square tower without a parapet, is characteristic.

B. **Walls** retain the massiveness and wide spacing of features characteristic of Norman work, but more cut stone work employed, and less rubble filling. The proportion of opening to the wall pier adjoining is often excellent, as in the transept of Salisbury Cathedral.

The concentration of the weight of the roof and vaulting on the buttresses, leads to the gradual treatment of the walling between as a mere screen.

Buttresses are generally equal in projection to their width, and are broken into stages by weathered set-offs (No. 91). They thus project considerably more than in the Norman period, in order to resist the lateral outward pressure of the pointed vaults.

In the interiors of this period, the nave arcade usually occupies the lower half of the height, the upper half being divided equally between triforium and clerestory, as at the choir of Ely and the naves of Lichfield (No. 93 C) and Lincoln.

In other cases, in order to provide a larger display of glass, the triforium is diminished, as at Westminster (No. 96 C) and Salisbury (No. 91 G).

C. **Openings.**—Proportions, generally, are more slender than in Norman work.

Pointed arches came into general use for constructive reasons, at first in connection with vaulting, and gradually throughout the whole building.

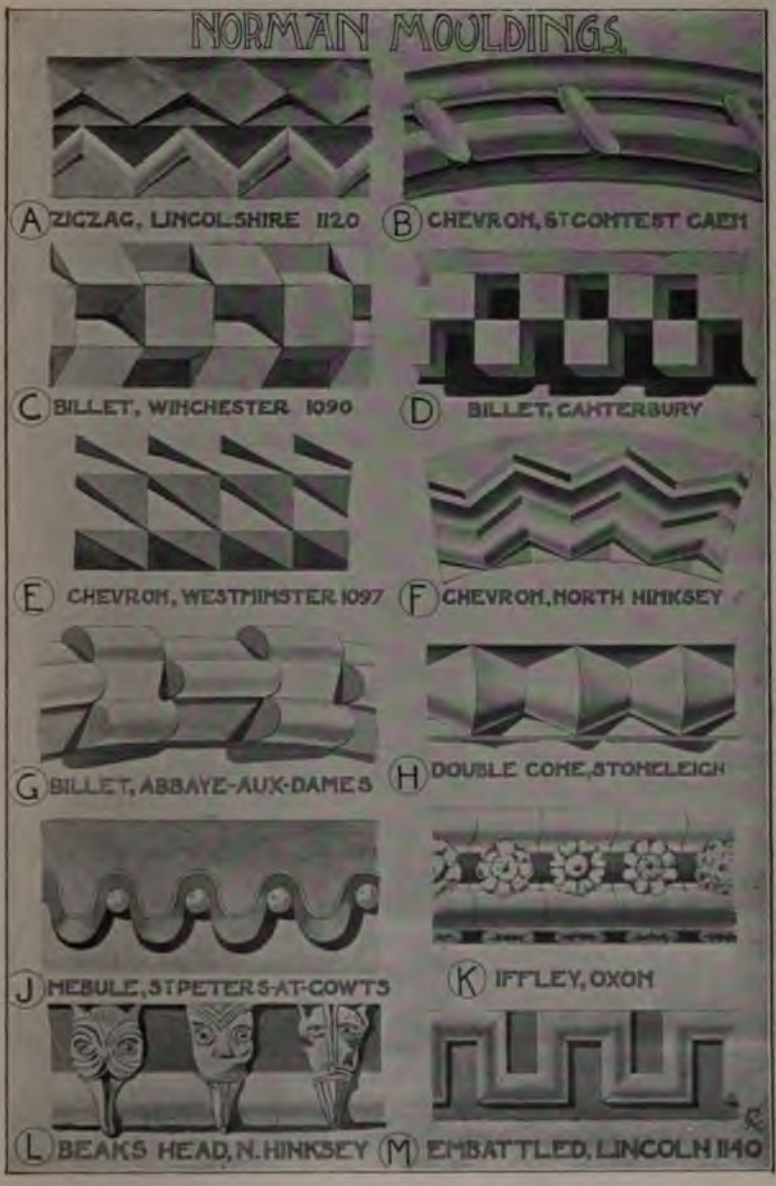
The doorways are often richly treated, and ornamented with carved foliage (No. 109 A).

Windows (Nos. 91 and 105 D) are of lancet form, and tracery begins to develop, especially the early form known as plate tracery (No. 110 A, B).

Early English cusps were let into the tracery in separate small pieces, springing from the flat soffite and not from the outer mouldings. This form of detached cusping is found generally in the circular lights, the heads of windows being usually solid.

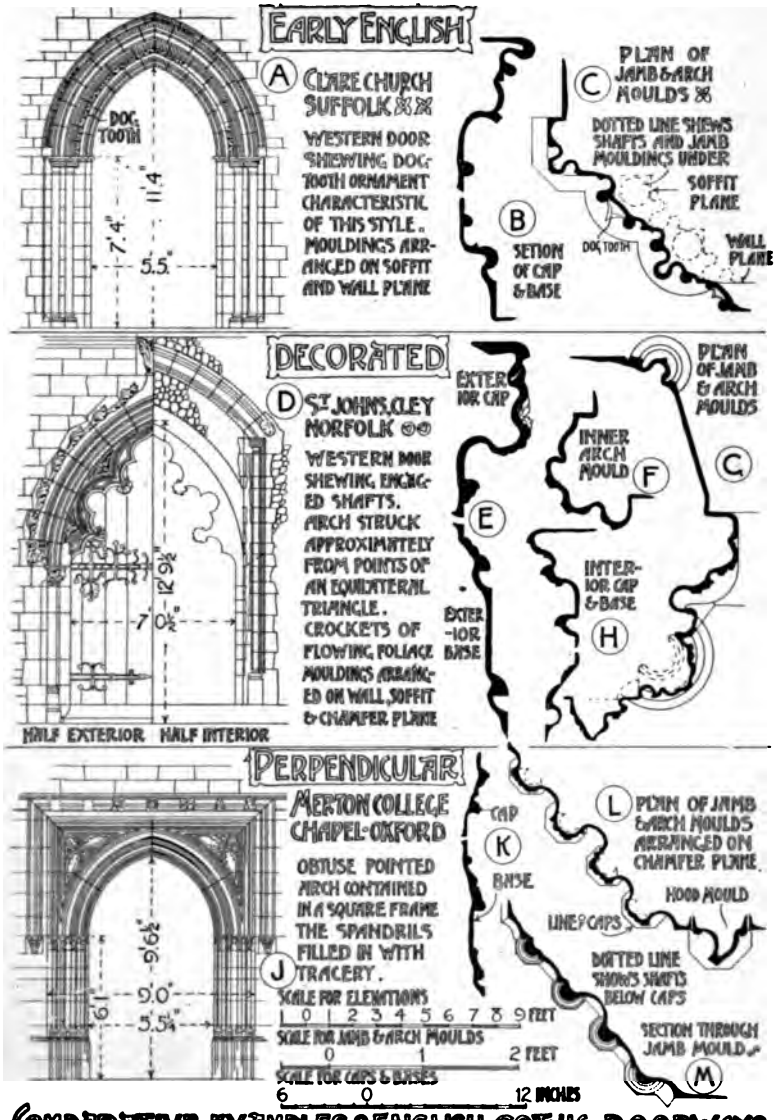
Narrow lancet windows are grouped in two, three, or even five lights, as in the "Five Sisters" in the north transept, York. The glass is usually kept near the exterior of wall, making the inside jamb very deep.

D. **Roofs** are considerably steeper than in the last period, approaching the shape of an equilateral triangle. The framing is shown where there is no vaulted ceiling. The braces are used to form a waggon shape, or semicircular ribs are employed, when the close setting of the flat rafters produces the effect of a barrel vaulting. (Vaulting, see page 202, and Nos. 83 and 84).


NORMAN MOULDINGS.
A ZIGZAG, LINCOLSHIRE 1120
B CHEVRON, ST CONTEST CAEN
C BILLET, WINCHESTER 1090
D BILLET, CANTERBURY
E CHEVRON, WESTMINSTER 1097
F CHEVRON, NORTH HINKSEY
G BILLET, ABBAYE-AUX-DAMES
H DOUBLE COME, STONELEIGH
J NEBULE, ST PETERS-AT-COWTS
K IFFLEY, OXON
L BEAKS HEAD, N. HINKSEY
M EMBATTLED, LINCOLN 1140



## ENGLISH GOTHIC EXAMPLES XIII.




# COMPARATIVE EXAMPLES OF ENGLISH GOTHIC DOORWAYS

E. **Columns.**—Piers consist of a central, circular, or octagonal shaft, often surrounded by smaller detached columns (No. 112). These latter are often of polished Purbeck marble, and, being detached, are held in place by bands at intervals, as at Salisbury (No. 92).

F. **Mouldings** are bold and undercut, following the outline of the rectangular recesses, and often of pear-shaped section (No. 112). The chiselled dog-tooth succeeds to the axed zigzag decoration.

Capitals are frequently moulded, so as to produce fine bold shadows (No. 113), or carved with conventional foliage, placed on the bell of the capital.

G. **Ornament.**—Flat surfaces are often richly diapered, as in Westminster Abbey (No. 96).

The most characteristic ornament is the dog-tooth, which is generally placed in hollow mouldings, and is used in great profusion (Nos. 109 and 111). The chisel is now generally used, taking the place of the axe in the early Norman period.

Carved foliage is conventional, and crisp and fine in treatment (No. 111).

The typical character consists of convex curling masses, being known as "stiff leaf foliage."

Sculptured figures of large size are used, and placed in niches with canopies over them. The west front of Wells (1206–1242) has 300 statues, being a grand composition, where sculpture is fully combined with architecture.

In regard to colour work, it has been suggested that the carved diapers of this and the next period are copies in stone of the hangings or painted decorations of the previous period. There is ground for believing that such carved diapers were themselves coloured.

Stained glass, rapidly increasing in importance, has something of the mosaic character. Pieces are small and much leaded up in patterns so as to suggest almost the cubic formation of mosaic. A general tone of colour pervades the windows, and an unrivalled deep and violet-like blue is a favourite tone.

Some very fine thirteenth century glass is at Canterbury Cathedral.

In the Early English and following periods, exquisite decorative art was produced in such works as the Psalters, Missals, Books of Hours and Chronicles. In these, the huntsman, fisherman, shepherd, labourer, scribe, saint, king, knight and monk were represented, forming a valuable record of contemporary life.

## THE DECORATED STYLE,

ALSO KNOWN AS THE GEOMETRICAL AND CURVILINEAR, MIDDLE POINTED, EDWARDIAN, LATER PLANTAGENET, OR FOURTEENTH CENTURY STYLE, comprises the reigns of

Edward II., 1307–1327,
Edward III., 1327–1377.

### ARCHITECTURAL CHARACTER.

The general appearance is simple, from small number of parts, and magnificent, from the size of the windows filled in with the geometrical tracery. Increasing richness of ornamentation characterizes every part. Clerestories are enlarged at the expense of the triforium. Vaulting ribs increase in number and complexity, the vault becoming a main feature in the effect of the interiors.

### EXAMPLES.

**London:**

The southern and western portion of the cloisters of Westminster Abbey.
The Chapel of St. Etheldreda, Ely Place, Holborn.
The Dutch Church, Austin Friars.

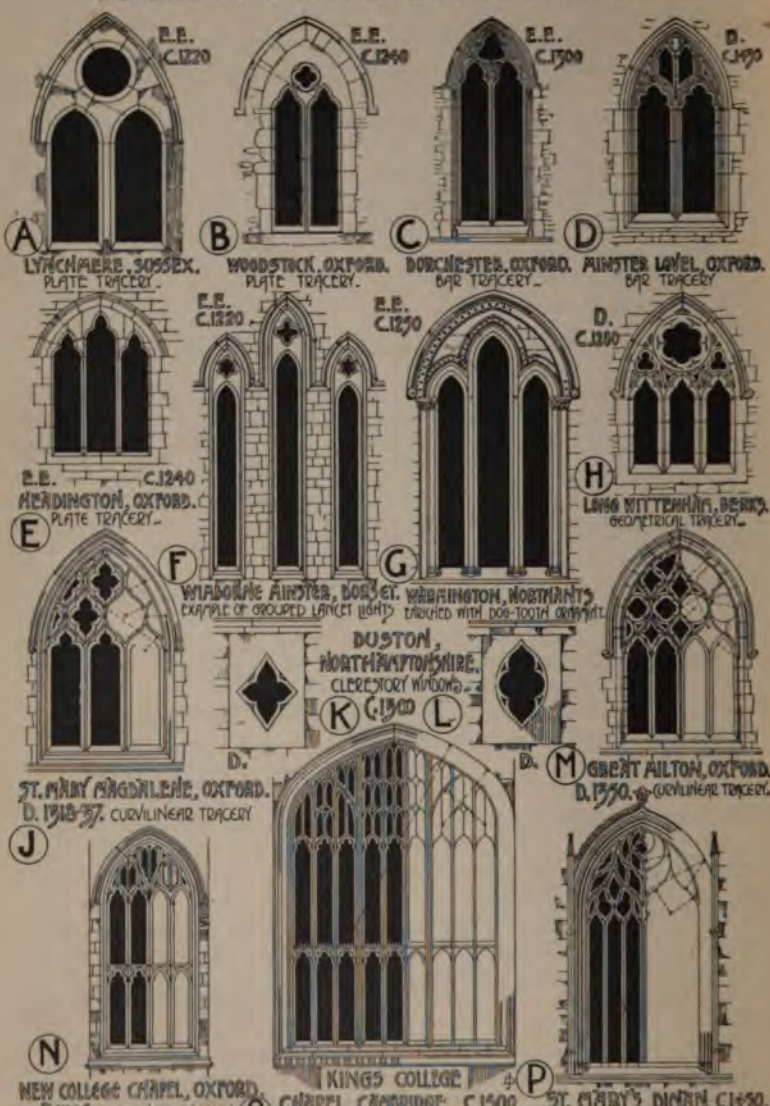
**Provinces:**

Lincoln Cathedral, nave and east end, including angel choir (1260–1280). Ely, the eastern portion. The choir, west front and chapter house at York, and the naves of Exeter and Lichfield.
Stone Church, Kent, St. Albans choir, the polygonal chapter houses of Salisbury, Wells, Southwell, and Westminster, and the Eleanor Crosses.

### COMPARATIVE.

A. **Plans** exhibit a tendency to wider spacing in the bays, and a greater height in the sections. The progress of vaulting regulates the planning of piers, and is in itself strongly influenced by the increasing size of the openings required to exhibit stained

# ENGLISH GOTHIC EXAMPLES XIV




COMPARATIVE EXAMPLES SHOWING PROGRESS OF GOTHIC TRACERY DEVELOPMENT

glass. In domestic architecture the "Hall" is highly developed, as at Westminster and Penshurst (No. 101).

Towers. Several of the great central towers were now carried up, as Salisbury (Nos. 88 A and 90), Lincoln (Nos. 88 B and 94), and Lichfield (No. 88 F).

Spires are lofty, and the "broach" form, characteristic of the thirteenth century, gradually gives way to parapets with angle pinnacles. Spire-lights are ornamented with crockets (No. 111 K), and ribs occur on the angles of the octagonal spires.

B. **Walls.**—The increasing size of the traceried windows, and the importance of the buttresses, for a time obscure wall treatment. The extension of tracery to the walls, in the shape of panelling, has its first slight beginnings at this period.

Buttresses occur with offsets in stages, and in later periods are ornamented with niches and crocketed canopies, as in the exterior of Lincoln (No. 94).

Parapets are often pierced with flowing tracery (No. 111 N), but this is especially a French feature, the English generally keeping to the battlemented form (No. 111 M).

C. **Openings.**—Proportions are less lofty than in Early English work.

Windows (Nos. 105, 106 and 110) are large, and divided by mullions into two or more lights. Tracery at first consists of geometric forms, and later is flowing in character. Examples of geometric tracery are in the cloisters of Salisbury, the choir clerestories of Ely, Lincoln, and Lichfield, and the nave of York. Examples of flowing tracery are in the choirs of Ely and Wells.

The cusps, which in Early English work, are often planted on, are in this period cut out of the solid stone.

Doorways (No. 109) are ornamented with engaged shafts, and are usually shallower than in the Early English style.

Arches are formed by being struck from the points of equilateral triangles, or are even of lower proportion (No. 256 I). The ogee arch (No. 256 V) was also used.

The enlargement of clerestory windows proceeds *pari passu* with the diminution in height of the triforium (No. 106 F). One of the finest interiors, in this phase of Gothic, is the angel choir at Lincoln Cathedral (No. 95).

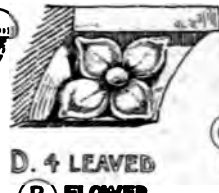
D. **Roofs** are of moderate pitch, and sometimes open framing, of which Eltham Palace and St. Etheldreda's, Ely Place, Holborn, are good examples. For examples of vaulting see No. 84.

E. **Columns.**—Piers are sometimes diamond-shaped on plan, with engaged shafts (No. 112). Small shafts surrounding a centre

# COMPARATIVE SELECTION OF GOTHIC ORNAMENTS IN DIFFERENT PERIODS.



A E.E. DOG-TOOTH



B D. 4 LEAVED FLOWER.



C D. BALL FLOWER.



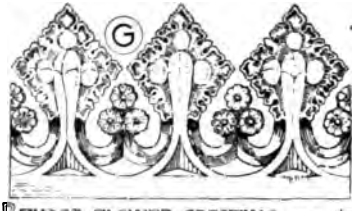
D D. TABLET FLOWER



E P. VINE LEAF & GRAPES



F P. CORNICE FLOWER.



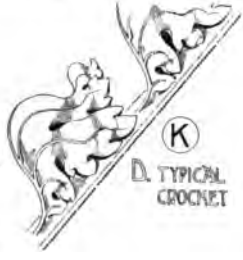
G P. TUDOR-FLOWER CRESTING. from HENRY VII CHAPEL



H P. TUDOR ROSE.



J E.E. CROCKET FROM SALISBURY CATHEDRAL



K D. TYPICAL CROCKET



L P. CROCKET FROM SOLIHULL WARWICKSHIRE.

PARAPETS



M E.E. ST. MARYS, BEVERLEY



N D. ST. MARY MAGDALENE. OXFORD.



O P. ST. PETERS, OXFORD.

column, and attached to the latter, are a development from the Early English.

F. **Mouldings.**—Hollow mouldings are ornamented with the ball-flower (Nos. 111 c and 112), which is specially characteristic of the style; other mouldings are shown on Nos. 109 and 112.

Cornices and dripstones often have their deep hollows filled with foliage and carving, and are ornamented with crockets (No. 111 K).

Dripstones are finished with a carved head, as at Cley Church, Norfolk (No. 109), or grotesques.

> "The carved angels, ever eager-eyed
> Stared, where upon their heads the cornice rests,
> With hair blown back, and wings put crosswise on their breasts."
>
> KEATS.

Base mouldings to walls are strongly marked, as seen in the exterior of Lincoln (No. 94).

For comparison of ornaments in Early English, Decorated, and Perpendicular periods, see No. 111.

G. **Ornament.**—Carved foliage in this period is generally naturalistic, and consists of seaweed, ivy, oak, and vine leaves, and the well-known tablet flower (Nos. 111 and 113).

Stained glass led to a great extension of window openings, and the development of tracery. In itself it loses the mosaic character, and becomes more translucent; the pieces are larger, and lighter in tone. Subject becomes of more importance, there is a loss in the general decorative effect of the interior, but the glass in itself gains in value and expression, as an art.

> "The deep-set windows, stained and traced,
> Would seem slow-flaming crimson fires."

Fittings, more especially in wood, as screens, choir stalls, etc., begin to acquire character and importance.

Shrines and tombs in masonry are elaborate and beautiful adjuncts to the interiors of the cathedrals and large churches, and the crockets and finials to pinnacles and canopies were increased in importance (No. 109 D, 111 K).

## THE PERPENDICULAR STYLE,

ALSO KNOWN AS THE RECTILINEAR, LATE POINTED, LANCASTRIAN OR FIFTEENTH CENTURY STYLE, comprises the reigns of

Richard II., 1377–1399,
Henry IV., 1399–1413,
Henry V., 1413–1422,

Henry VI., 1422–1461,
Edward IV., 1461–1483,
Edward V., 1483–1483,
Richard III., 1483–1485,
Henry VII., 1485–1509,
Henry VIII., 1509–1547,
Edward VI., 1547–1553,
Mary, 1553–1558,
} Mingled with elements of the Renaissance.

## ARCHITECTURAL CHARACTER.

The general appearance varies much in earlier and later work, the latter being overladen with panelling, the main lines in a perpendicular direction predominating (Nos. 106 G and 110).

The immense windows are now strengthened by transoms in tiers (Nos. 106 G and 110), by doubled mullions, and, in some great east end windows, by an inner structure forming a gallery across the window, as at York. The triforium practically disappears, and clerestory and aisle windows are of great size.

## EXAMPLES.

**London.**—Henry VII.'s Chapel (Nos. 96, 97 and 99), (a most perfect example,) St. Margaret's, Westminster, Porch (with vaulting) S. Sepulchre's Church, Holborn, the Savoy Chapel in the Strand, Westminster Hall, and Crosby Hall, London.

**Provinces.**—Some of the finest examples are the west fronts of the cathedrals, as at Winchester, Gloucester, Beverley, St. George's Chapel, Windsor (No. 102), and King's College Chapel, Cambridge.

> "This immense and glorious work of fine intelligence."
> WORDSWORTH.

Other examples are the nave of Canterbury, choir of York, Gloucester (transept, choir, and cloisters), Beauchamp Chapel at Warwick, Winchester nave (remodelled) (No. 93), Magdalen, All Souls, and New Colleges, at Oxford. Towers at Gloucester and Canterbury; also many of the colleges of Oxford and Cambridge, and mansions throughout the country.

## COMPARATIVE.

A. **Plans.**—Owing to the great building era that had preceded this period, ecclesiastical work of any size is either restoration or addition. Domestic work commences to develop. In church


COMPARATIVE MOULDINGS OF THE PERIODS OF GOTHIC ARCHITECTURE.
NORMAN
EARLY ENGLISH.
DECORATED.
PERPENDICULAR.

planning, a decrease in the size of the piers, and a tendency to throw all pressures upon the buttresses, which have often great depth, may be noted.

Towers are numerous and important, and generally erected without a spire, as the Bell Tower, Evesham (1533). Rich panelling, especially in Somersetshire, is a characteristic of the designs of the period. When a spire occurs, it rises behind a parapet, as at Kettering Church, Northants.

B. **Walls** are profusely ornamented with panelling (Nos. 93, 97 and 106 G), resembling tracery of windows, as at Henry VII.'s Chapel, which may be taken as the most elaborate specimen of the style.

Parapets are embattled and panelled, and often very rich, as at Merton College, Oxford (No. 111).

Buttresses have bold projection, and are crowned with finials (Nos. 93 D, E and 97), which are often richly ornamented with crockets. The buttresses are sometimes deep enough in projection to allow of a chapel being placed between, as at King's College, Cambridge. They are also panelled with tracery, as at Henry VII.'s Chapel (No. 97).

The use of flint as a wall facing, for panels in conjunction with stone tracery, in the counties of Norfolk and Suffolk, is to be noted.

C. **Openings.**—Arches in the early period inclose an equilateral triangle; they are afterwards obtusely pointed, or struck from four centres (Nos. 102 and 256), and are inclosed in a square above the head (No. 109).

Windows are of a very characteristic form, which gives the name "perpendicular" to the period. The earliest are probably those at Winchester Cathedral (No. 93), executed under William of Wykeham. They have mullions continued vertically their whole height (Nos. 106 G and 110), stopping against the main arch, and strengthened by horizontal transoms. In many cases they are of enormous size, converting the west end into a wall of glass, as at St. George's Chapel, Windsor (No. 102) and the east window at Gloucester, which is 38 feet wide by 72 feet in height.

Doorways are generally finished with a square label over the arch, and the spandrel filled with ornament, as shown in interior elevation of doorway (No. 109 J).

Lofty clerestories are general, and the triforium gradually disappears (Nos. 93 F and 106 G), its place being taken by panels, as at St. George's Chapel, Windsor, or by niches for statuary, as at Henry VII.'s Chapel.

D. **Roofs.**—Open timber roofs of moderate pitch and of the hammer-beam construction abound; they are often richly

# COMPARATIVE EXAMPLES OF ENGLISH GOTHIC CARVED FOLIAGE.



ornamented with carved figures of angels, and with pierced tracery (No. 85). Many examples exist in Norfolk. The later roofs in the style become nearly flat. The roof of Westminster Hall was erected in 1399 (see page 206, for mediæval roofs).

*Fan vaulting* (No. 84) is characteristic of the later periods, and remarkable as being used in England almost exclusively. Henry VII.'s Chapel (No. 99) is perhaps the finest example. Note also King's College Chapel, Cambridge, and St. George's Chapel, Windsor, as well as the vaults of the central towers of Canterbury and Gloucester Cathedrals.

E. **Columns.**—Piers (No. 112) are generally oblong on plan, with their longitudinal direction placed north and south. This was brought about by the vaulting shaft being taken up from the ground.

The characteristic pier consists of four circular shafts connected by hollows, and with two fillets, these mouldings being carried round the arch.

F. **Mouldings** generally are arranged on diagonal planes (No. 112), being wide and shallow, often large and coarse.

Mouldings to piers are often continued up from the base, and round the arch without the intervention of capitals.

Crestings run along the top of cornice mouldings (No. 111), and diminutive battlements along transoms.

Capitals are sometimes polygonal on plan, and few have the abacus and bell perfectly defined, the mouldings being weaker and less effective (No. 112).

Foliage is of conventional character, shallow and square in outline (Nos. 111 and 113).

Bases to piers, etc., are often polygonal on plan (No. 112).

G. **Ornament.**—Canopies are often of ogee character, enriched with crockets (No. 97).

Ornaments and sculptured foliage are shown in Nos. 111 and 113. The special ornaments of the period are the Tudor rose, the portcullis, and the fleur-de-lis, all of which are used unsparingly (see Henry VII.'s Chapel) (No. 97), especially as an ornament in square panels.

Wooden chancel screens are very numerous in the style, and elaborately treated with panelling, niches, statues, and pinnacles; also with the Tudor flower cresting (No. 111 G), the upper part being divided by mullions, supporting tracery.

The misereres under the choir-stalls of the period are carved with delicate foliage, grotesques, and flowers, and the bench ends with poppy-heads.

The tendency is to obtain decoration, by the application of features on a small scale: thus the tracery of windows is carried

on to the walls as blank panelling; battlements, reduced to a small scale, are carved along the cornices, and by this misuse of features a copious supply of ornamental *motifs* is obtained. In stained glass the use of silver stain leads to the employment of white glass, on which its golden tinge shows to advantage; colour is more sought after while the figures remain large. In the windows of this period, painted canopies of architectural character inclosing either single figures or subjects are largely used. In very late examples, as at King's College, Cambridge, gorgeousness of colouring exists with great confusion of form and subject, the general design becomes more pictorial, and perspectives are introduced, thus breaking away from the conditions imposed by the material. In this return to colour, however, there is no such completeness of one tone effect, as in the early work noted above. Colour decoration is freely employed on roofs, screens, pulpits, and other fittings, as may be studied in the Norfolk churches.

## CONCLUSION.

We have now traced the various phases of Gothic architecture in England, from the time of the Norman invasion to the end of the reign of Henry VII. About this time, the Renaissance of literature in Italy was taking place, and it became the fashion to read the Greek and Latin authors. Architecture, painting, and sculpture followed the tendencies of the age, in the train of literature, and the generation that wrote and spoke the Latin tongue similarly desired to build in the style of the ancient Greek and Roman buildings. The Revived style originated naturally in Italy, because there the Gothic style had never, at any time, taken a very firm hold, and by reason of the guidance afforded by the numerous Roman ruins. Thence it spread to France and England; and the particular forms it took, in each of these countries, will be treated of under the head of Renaissance architecture. It is exemplified in more or less debased but picturesque styles of work, the incoming Renaissance details being grafted on to the native Gothic style. **Tudor** architecture is the work of builders trained in Gothic art, but working probably under the directions of a designer familiar with the new features of the Renaissance. In some examples, however, even of an early date, the designs for the details and mouldings would seem to have been made by a foreign artist. Tudor architecture is the name given to the style prevalent during the reigns of Henry VII., Henry VIII., Edward VI. and Mary, in which the influence of the Renaissance movement is noticeable. Following the Tudor came the Elizabethan and Jacobean styles, in which we may trace, more and

more, the influence of the old Classical architecture, until the Renaissance, finally shaking itself clear of incongruities, develops into the Anglo-Classic of Inigo Jones. The process, however, was slow, and Gothic structures, more or less debased, were erected late into the sixteenth century (see English Renaissance).

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*Note.*—A careful study of the buildings themselves is necessary to appreciate thoroughly the progress of the style. Many of these are within the reach of the student, and measured drawings and sketches should be made, and will be found to impress the different features on the mind more thoroughly than study solely from books.

In London, an important collection of architectural casts of each period can be seen at the Architectural Museum, Tufton Street, Westminster.

# SCOTTISH ARCHITECTURE.

Architecture in Scotland followed on much the same lines as in England, until the middle of the fifteenth century, when it took a more national turn. Inspiration was largely drawn from abroad, especially from France, with which country there was a close political connection, causing it to develop in a picturesque and interesting way on French lines, especially after Robert Bruce, A.D. 1306–1329, finally secured the independence of Scotland. In Melrose Abbey is to be seen the influence of French and Spanish Art, while in Rosslyn Chapel Portuguese influence is apparent, for it is very similar in detail to the Church of Belem near Lisbon. The most important Cathedrals are those of Glasgow, with its famous crypt; St. Andrew's, Kirkwall, Dunblane, Aberdeen and Elgin. The Abbeys of Kelso, Melrose, Dunfermline, Holyrood and Dryburgh are the best known. In these the lancet window, either singly or in groups, was used long after it had been discontinued in England. In later work, the Flamboyant tracery of French Gothic was followed in preference to the perpendicular of English work.

The Pele or bastle houses were of the tower class, with projecting turrets at angles, and consisted of single rooms one over the other, accessible by "turnpike" or winding stairs.

In Scotland stone was almost universally employed.

The "corbie" or "crow-stepped" gable was used in preference to the straight-sided gable of England. In vaulted roofs a continuous barrel vault with surface ribs was occasionally employed.

Scotland is specially rich in domestic remains of the late Gothic period, which possess distinctive character. In these a picturesque use of circular towers, vast height of walls, treated in a simple, almost bare, manner, and the planning of the buildings at different angles, are characteristic.

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# IRISH ARCHITECTURE.

**Celtic Architecture.**—The chief interest lies in the remains of the Celtic Architecture erected from the sixth century to the English Conquest in 1169.

The early Churches were extremely small, under 40 feet in length, and appear to have been used principally as oratories, where the priest could officiate. A small square chancel was attached. The naves were covered with barrel vaults, over which was a hollow chamber called an "overcroft," as at Killaloe; the outer surface had a steep pitched roof, generally formed in stone, as at Cormac's Chapel, Cashel, St. Kevin's Kitchen, Glendalough, and other places. Windows appear to have been unglazed.

The **Monasteries** form another class of building, and the Rev. Prof. Stokes, in his investigations, refers to a group of seven small churches found at Inchleraun, similar in number to those in Asia Minor and at other places. The monastic cells at the Skellings are peculiar; they are of beehive form, the domed stone roofs being in horizontal courses, as in the early work in Greece at Mycenæ (No. 14) and elsewhere.

**The Round Towers,** generally detached and placed near the Church, have been a subject of much controversy, but the generally accepted view, originated by Mr. George Petrie, is that they were used as treasure houses, refuges, bell towers, and for displaying lamps at night time, or were merely erected as symbols of power. They taper slightly towards the summit and are crowned with either a conical or battlemented covering. The entrance doorway was several feet from the ground.

**Mediæval Architecture.**—Within the English domain the influence of Continental art was felt during the Middle Ages, but few monuments of importance were erected. The Cathedrals of Dublin, Kildare and Cashel, were the most important. The absence of parish churches is remarkable. The Monasteries and Friaries (principally Franciscan) are small, and some still retain their cloisters. They usually have a nave and choir, probably some time divided by a wooden screen, a transept and southern aisle, a tower being added in the fifteenth century. The best known are those at Cashel, Kilconnel, and Muckross.

Owing to the disturbances of Elizabethan times there is no domestic architecture of note, but the earlier castles built by the Chieftains are interesting.

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# FRENCH GOTHIC.

"Graceful, grotesque, with ever new surprise
Of hazardous caprices sure to please,
Heavy as nightmare, airy, light as fern,
Imagination's very self in stone."—LOWELL.

## 1. INFLUENCES.

**i. Geographical.**—France may be divided architecturally, into North and South, by the River Loire.

The Franks were practically settled north of the Loire, and the Romance race south of the Loire. (See also under French Romanesque.)

**ii. Geological.**—The North developed the new Gothic style sooner than the South, and the excellent building stone found near Caen, so often employed in English work, no doubt caused the province of Normandy to forge ahead.

The influence of materials should be noted, as, for instance, in the mountainous districts of Auvergne, where the use of coloured volcanic material gives a decorative character to the style.

**iii. Climate.**—Has already been touched upon under Romanesque.

**iv. Religion.**—Religious zeal, which within so short a period created so many grand cathedrals, was manifested also in the Crusades, the last of which took place in 1248–1254. The clergy as a corporate body reached the summit of their power and influence, that of the Abbé Suger being remarkable. Such was largely due to their championship of justice and their adhesion to the royal cause. Rome remained the controlling spirit, though local liberties were not all swallowed up in centralization. The introduction of various special cults gave fame to certain chapels and shrines, and pilgrimage centres acquired

both wealth and importance, which did not lack architectural expression.

The zeal with which the urban populations set about building cathedrals has been compared by Viollet-le-Duc to the commercial movement which in these days has covered Europe with railway lines.

The crusade against the Albigenses (see below) was a movement against Christians who had been decided by the Pope to be heretics. The next stage was to carry on a religious war against all who were considered to be enemies of the Papacy.

**v. Social and Political.**—Anterior to the commencement of the period about which we are writing, we find that France was inhabited by races of people widely differing from each other, governed by different rulers, and at constant war.

In continuation of the early Romanesque, the Gothic architecture of France, which followed in its train, varies considerably in different parts of the country, such being due to political environment, to the separation of the various parts by different languages and customs, and to the Roman remains, which naturally gave a classical tone to any new architectural development in the district in which they were found.

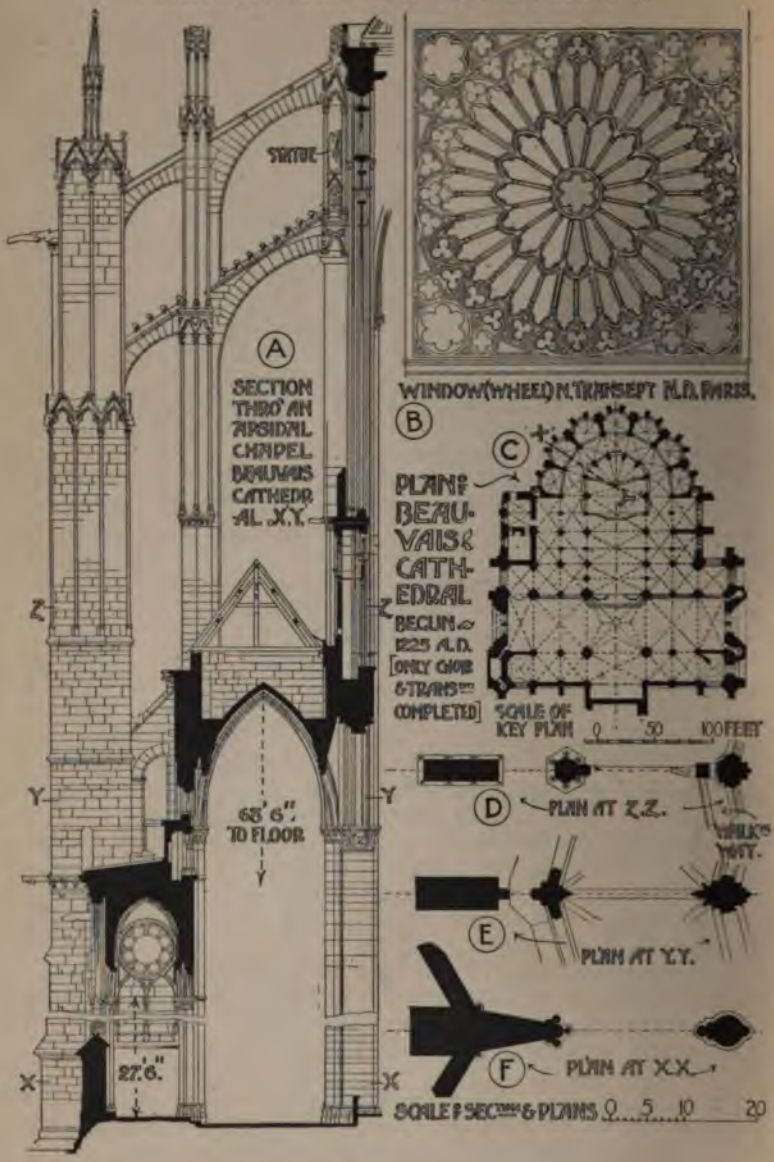
**vi. Historical.**—The real beginning of the modern kingdom of France may be said to commence with Hugh Capet, who was chosen king in 987, with the title King of the French.

Philip Augustus (1180–1223) declares John, King of England, to have forfeited all the fiefs he holds of the French crown. He then proceeds to conquer Normandy, and all John's possessions in Northern Gaul, Aquitaine still being held by the English King. Philip defeats the combined forces of English, Germans, and Flemings at the Battle of Bovines in 1214. As showing the power of France at this time, note that the English barons offer the crown of England to Louis, the eldest son of Philip. On the death of Philip, the French crown passes in succession to Louis VIII. and Louis IX., who is called St. Louis, on account of his goodness. The power of the crown increases largely under his rule.

As a consequence of the crusade preached against the Albigenses by Pope Innocent, the dominions of the Counts of Toulouse were conquered by him, 1229. Thus France obtained a sea-board on three seas, the Mediterranean, Atlantic, and the English Channel.

St. Louis died at Tunis, 1270, when setting out on his last crusade. The development and consolidation of the French kingdom corresponds with the great cathedral-building epoch of the thirteenth century.

# FRENCH GOTHIC EXAMPLES I.



Comparative Views
of Models of
Continental Cathedrals.



A. Amiens.



B. Rouen.



C. Antwerp.



D. Nôtre Dame,
Paris.



E. Strasburg.



F. Beauvais.



## 2. ARCHITECTURAL CHARACTER.

The main idea or prevailing principle of Gothic architecture in France was the same as in all Europe, the vertical and aspiring tendency being accentuated by numerous spires, crockets, and pinnacles, by great internal height, high-pitched roofs and flying buttresses, and the long lines of the tall traceried windows (Nos. 115, 119, 121, 122 and 123). (See p. 184.)

The style is divided by M. de Caumont into

(1.) Primary (Gothique) or thirteenth century,
(2.) Secondary (Rayonnant, from the characteristic wheel tracery of the rose windows) or fourteenth century,
(3.) Tertiary (Flamboyant) or fifteenth century,

but it is proposed, on account of space, to consider the subject as one continuous development—as, in fact, it really was—and to compare it where necessary or possible with English work.

## 3. EXAMPLES.

### PRINCIPAL CATHEDRALS.

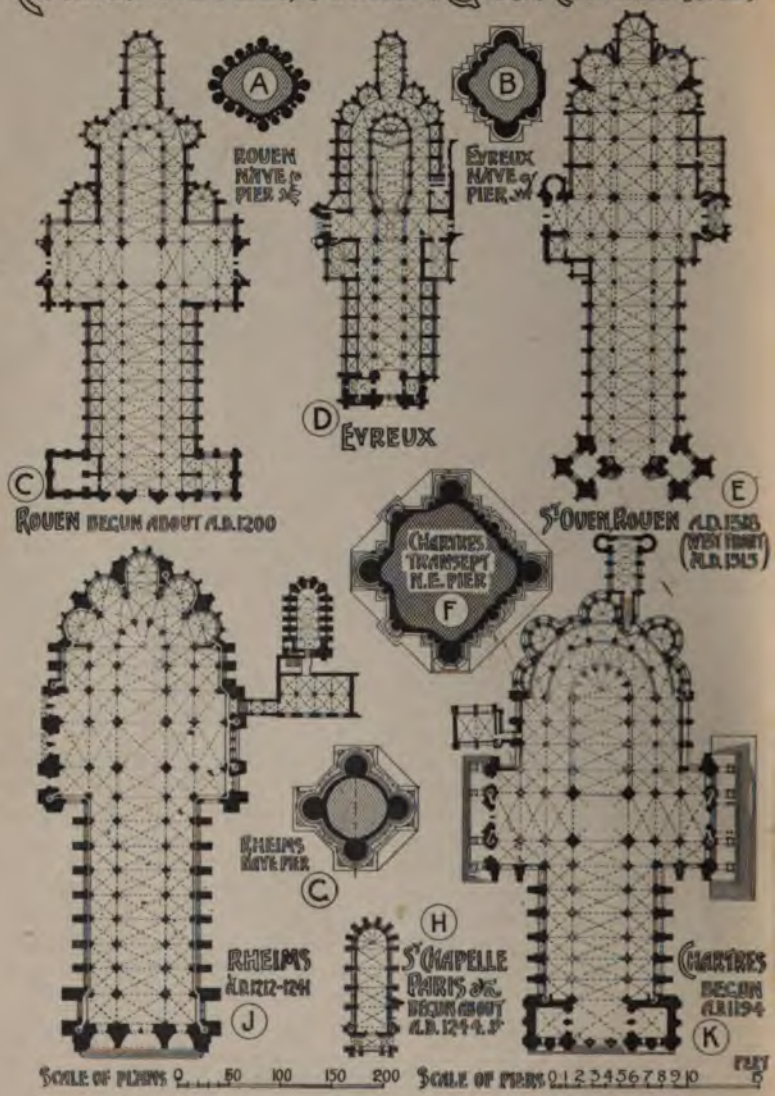
The cathedrals of **Rheims** (Nos. 116 J and 122) (1212–1242), **Chartres** (Nos. 82 E and 116 K) (1194–1260), **Amiens** (1220–1228) (typical plan No. 120), **Rouen** (Nos. 115 B and 116 C) (1202–1220), **Coutances** (No. 123) (1254–1274), **Beauvais** (Nos. 114 and 115 F), the most lofty choir in Europe (rebuilt 1337–1347), **Notre Dame, Paris** (Nos. 115 D, 117, 118 and 119), **Bourges** (commenced 1190), etc., were all erected during the thirteenth century; while **St. Ouen at Rouen** (No. 116 E) (1318–1515) is typical of the later style. All the great cathedrals, numbering about 150, were erected in the first half of the thirteenth century, principally by funds provided by the laity, and not as parts of monastic establishments, hence the absence of cloisters, etc.

**Bayeux Cathedral** (twelfth to the thirteenth century) is remarkable as possessing twenty-two chapels and an immense crypt under the sanctuary, dating from the eighth to eleventh century. The planning of the cathedrals of Northern Europe, in regard to their situation and surroundings, is in marked contrast with English cathedrals (Nos. 90 and 123), and is well distinguished by Browning, who talks of that

> "Grim town,
> Whose cramp'd, ill-featured streets huddled about
> The minster for protection, never out
> Of its black belfry's shade and its bells' roar."

FRENCH GOTHIC EXAMPLES II.

# COMPARATIVE PLANS OF FRENCH GOTHIC CATHEDRALS





117. Nôtre Dame, Paris.
West Front



**Notre Dame, Paris,** 1163–1214 (Nos. 114 B, 115 D, 117, 118 and 119), the oldest of French Gothic cathedrals. Notice the numerous points of support, and the sexpartite vaulting (Nos. 118 and 119) of the central nave; the small projection of transepts, these being practically in a line with the side aisles; the *chevêt* arrangement, with its double aisles, and exterior chapels carried round. The west front (No. 117) is the grandest composition in France, if not of the whole style. The western gable to the nave is hidden by a pierced screen, connecting the two western towers. The three deeply recessed western portals, the band of statues in niches, and the circular wheel window are all characteristic features.

**Amiens Cathedral,** 1220–1257 (Nos. 115 A, 120 and 121).—In plan the typical French cathedral, referred to in the Comparative Table. The side chapels to the nave are a later addition.

**Coutances Cathedral** (No. 123).—Erected in the early part of the thirteenth century. Specially famous for the two western towers and spires, and the octagonal lantern over the crossing of nave and transept.

**Bourges Cathedral,** commenced A.D. 1190, is chiefly remarkable as possessing no transepts, for its shortness in comparison with its width, and its general resemblance in plan to Notre Dame, Paris. It has five aisles, as has also Troyes Cathedral, in three different heights, in this respect resembling Milan Cathedral (No. 137), though in a different gradation. The absence of transepts with an apsidal termination, and the great height, give to the cathedral the appearance of a great hulk. The view westwards from the east end is striking, owing to the picturesque confusion of innumerable flying buttresses, pinnacles, and other features.

The **Sainte Chapelle, Paris** (1242–1247), is often quoted as a typical Gothic structure, the wall between the buttresses being entirely of windows 15 feet wide by 50 feet high (No. 116 H).

**Alby Cathedral** (commenced 1280) is peculiar in having no aisles or transepts, but a series of flanking chapels separated by internal buttresses.

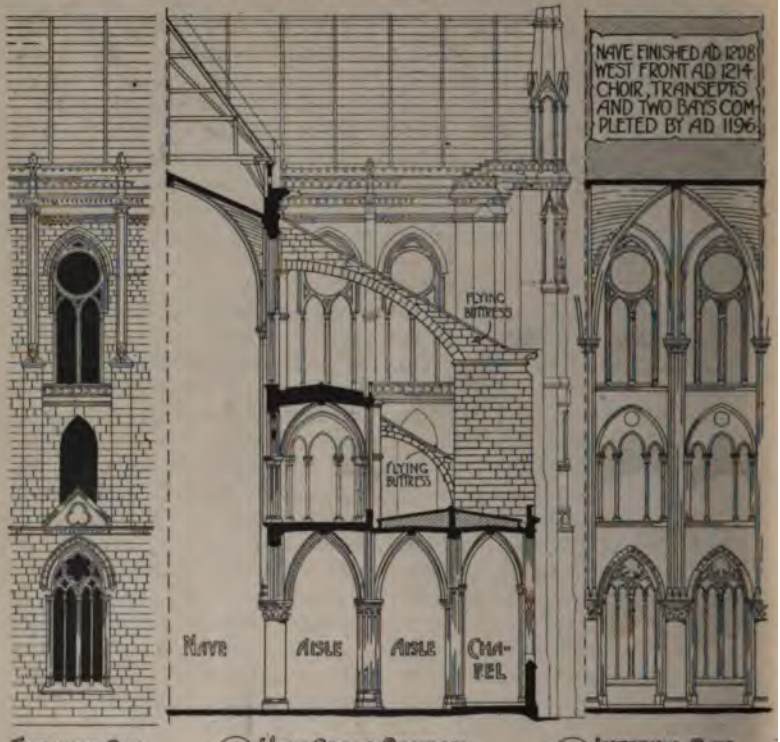
## DOMESTIC WORK.

Many fine examples remain throughout France, especially in such old-world towns as Caudebec.

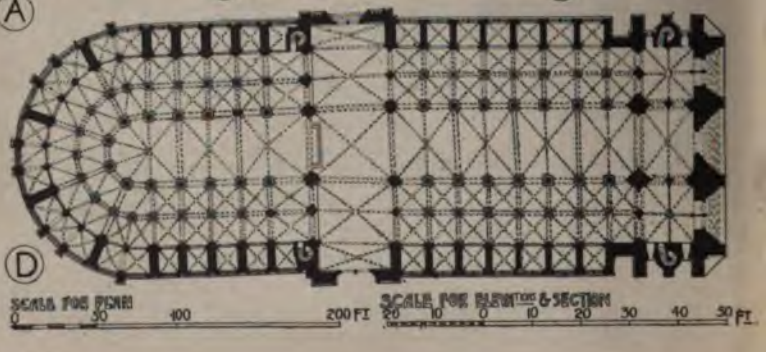
**The House of Jacques Cœur, Bourges** (1443) (No. 124). This splendid example of the house of a great merchant prince of the period is well known. There is a courtyard in the centre of the building, the entrance being under a low tower. Arcades

# FRENCH GOTHIC EXAMPLES III.

## NOTRE DAME PARIS FOUNDATION LAID A.D. 1163.




EXTERIOR BAY (A) (B) HALF CROSS SECTION (C) INTERNAL BAY





19. Nôtre Dame, Paris.
Interior, looking East.



give on to the court, which is also marked by a fine staircase turret. A vaulted chapel on the first floor has interesting colour decoration, the cells being painted with angels. The lower part of one side is built upon Roman work.

The **Palais de Justice, Rouen**, 1499–1508 (No. 125), is an exceedingly rich and interesting specimen of French municipal architecture. The houses at Rouen and Paris (Hôtel de Cluny) are also good examples. The Château de Pierrefonds, restored by Viollet-le-Duc, and that at Mont St. Michel in Normandy, are well-known examples.

Numerous buildings, such as hospitals, as those at Angers and Chartres, are still extant.

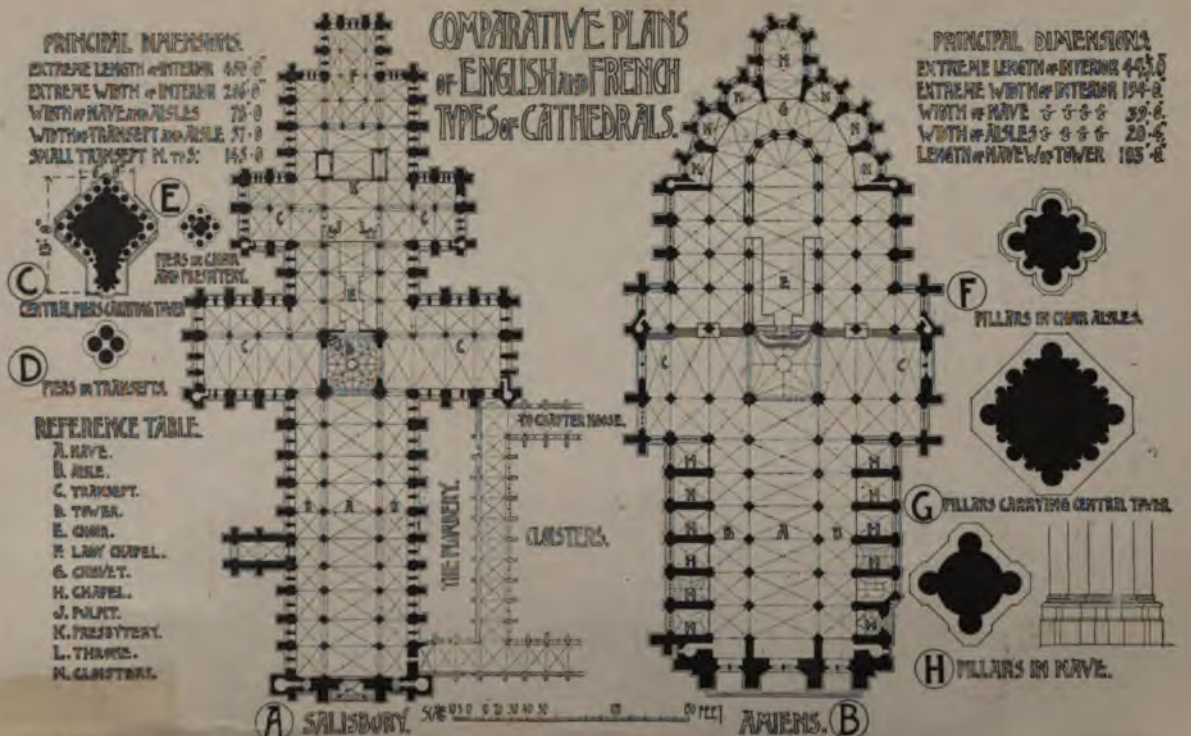
Examples of stone houses will be found in the south, as at Poitiers, etc., and half-timbered houses such as those at Rouen were often of elaborate design.

Students are often inclined to think that Gothic architecture was confined to ecclesiastical work. It should be remembered that this is not so, but that the style pervaded every building that was erected. Many buildings, however, were erected of timber with brick or plaster filling. These naturally decayed or were burnt, and there are, in consequence, fewer remains than of the more monumental ecclesiastical buildings.

## 4. COMPARATIVE.

**Amiens Cathedral** (No. 120) is the most characteristic French cathedral, in the same way as **Salisbury** (No. 120) is considered to be the most typical English cathedral.

| FRENCH GOTHIC. | ENGLISH GOTHIC. |
|---|---|
| A. **Plans** (No. 120). — Short, wide, and high. Length about four times the width. | A. **Plans** (No. 120). — Long, narrow, and low. Length about six times the width. |
| In the south richly designed cloisters are frequently met with, otherwise they are rarely found. | Cloisters frequent, owing to monastic foundation, and characteristic of English Cathedrals. |
| Transepts have slight projection, as may be seen in the sheet of comparative plans (No. 116). | Transepts have bold projection, and a second eastern transept is found, as at Salisbury, Lincoln, etc. |
| Large number of side chapels, due to the popular character of the cathedral as compared with the abbey. | Small number of side chapels, due to the fact that the principal cathedrals were churches belonging to monastic foundations. |
| The circular apse is developed to *chevet*. | The square east end characteristic. The "Nine Altars" at Durham as an east end transept is remarkable. |
| Laon, Dol, and Poitiers are notable exceptions. | |


COMPARATIVE PLANS OF ENGLISH AND FRENCH TYPES OF CATHEDRALS.
PRINCIPAL DIMENSIONS.
EXTREME LENGTH of INTERIOR 449'-0"
EXTREME WIDTH of INTERIOR 216'-0"
WIDTH of NAVE AND AISLES 78'-0"
WIDTH of TRANSEPT AND AISLE 57'-0"
SMALL TRANSEPT N. TO S. 145'-0"
PRINCIPAL DIMENSIONS.
EXTREME LENGTH of INTERIOR 443'-0"
EXTREME WIDTH of EXTERIOR 194'-0"
WIDTH of NAVE 39'-6"
WIDTH of AISLES 20'-6"
LENGTH of NAVE W/o TOWER 185'-0"
REFERENCE TABLE.
A. NAVE.
B. AISLE.
C. TRANSEPT.
D. TOWER.
E. CHOIR.
F. LADY CHAPEL.
G. CHEVET.
H. CHAPEL.
J. PULPIT.
K. PRESBYTERY.
L. THRONE.
M. CLOISTERS.
PIERS OF CHOIR AND PRESBYTERY.
CENTER PIERS CARRYING TOWER
PIERS IN TRANSEPTS
TO CENTER NAVE.
THE PRESBYTERY.
CLOISTERS.
PILLARS IN CHOIR AISLES.
PILLARS CARRYING CENTER TOWER.
PILLARS IN NAVE.
A SALISBURY.
B AMIENS.



121. AMIENS CATHEDRAL.



122. Rheims Cathedral.
West Front.





123. Coutances Cathedral.
West Front.

| FRENCH GOTHIC. | ENGLISH GOTHIC. |
| --- | --- |
| There are sometimes double aisles, as at Nôtre Dame, Paris (No. 118), Le Mans (choir), Bourges, etc. | Practically always single aisles; Chichester is the only example to the contrary (see page 216). |
| Two western towers (Nos. 115, 122 and 123) characteristic, the probable reason being that the great height of nave prevented a central tower being constructed. Compare central *flêche* at Amiens (422 feet high) (No. 126 B). | The central tower the most successful and predominant feature, as Lincoln (Nos. 88 B and 94), Canterbury, Durham, York, Ely, and Gloucester (No. 88). A single western tower is characteristic of parish churches. |
| In Normandy, central spires are common. The French attempted to combine many towers, placing four at the internal angles of the transepts, and two at the west end, with central flêche only, as at Läon, Amiens (Nos. 115 A and 126 B), etc. | The English were content to group three spires, placed on a central and two western towers, as at Salisbury (Nos. 88 A and 90), Chichester (No. 86 A), and Lichfield (No. 88 F). |
| Wide spacing of arcading and general largeness of parts. No polygonal chapter houses. | Close spacing of arcading and smallness of parts in main features. Polygonal chapter houses typical. |
| B. **Walls.** — Early buttresses developed from the slight projections of the Romanesque period. They are sometimes semicircular columns attached to the walls, especially in the apses of churches. Later buttresses have chapels between them (No. 118). | B. **Walls.** — Early buttresses are flat projections. Later ones are much pronounced, and strongly marked with offsets and pinnacles. Transitional buttresses may be seen at Salisbury with curious weathering. |
| Flying buttresses are common, and are used with special effect at the east end. They are largely employed, being necessary on account of height and width of aisles and naves. | Flying buttresses, although occurring in many examples, are not so prominent a feature because the clerestory is kept comparatively low. In the absence of the *chevêt*, these features are somewhat unimportant in the general effect. |
| Offsets to buttresses are flatter as they are higher. Buttresses often nearly vertical, without offsets (No. 114). | Offsets to buttresses are steeper as they get higher. In the later periods highly ornamented with niches and panelling. |
| Interiors owe their effect largely to their extreme height, otherwise they are considerably less ornate than the English examples. | Interiors are ornate, owing to elaboration of the triforium, complex pier arch mouldings, variety of clerestory treatment and richness of the vaulting. |
| Open tracery parapets occur (Nos. 125 and 126 C, D). | The battlemented parapet predominates (No. 111 M). |

FRENCH GOTHIC.

Characteristic west front is Nôtre Dame, Paris (No. 117).

c. **Openings.** — Doorways elaborate and rich, larger and finer than the English, and deeply set in west fronts, as at Coutances and Nôtre Dame, Paris (Nos. 117, 122 and 123).

Windows have much "plate" tracery, "flamboyant" tracery final development.

Notice the absence of cusps in late French tracery.

Large circular windows in west fronts (Nos. 117 and 121), and transept ends (No. 114 B), with intricate tracery, are a special feature.

D. **Roofs.** — Roofs always steep and ornamented (Nos. 115 and 125).

Slates often employed. Construction with double timbers of special type to surmount high vaults.

Early development of the vault, which is specially characteristic of the style. A striking feature of the "flamboyant" or later period is the frequent use of pendants in vaulted roofs.

French vaults are usually domical, and ridge ribs are rarely employed. Very slight development in vaulting takes place. Intermediate and lierne ribs seldom used. Compare Gothic vaulting (page 188) (Nos. 81 and 84).

Extreme height, as at Amiens, which is 140 feet (No. 121).

The joints of the web (or infilling) are at right angles to the wall ribs (No. 119).

E. **Columns.** Plain circular nave columns are characteristic, as in Nôtre Dame, Paris (No. 126 H).

The use of columns seems due to Roman tradition; the capitals

ENGLISH GOTHIC.

Characteristic west front is Peterborough (No. 87 C).

c. **Openings.** — Doorways more simply treated, and placed in less important position on south front, and often provided with a separate porch, elaborate and characteristic—Salisbury, Canterbury, Lincoln (No. 94), etc.

Windows develop on the same lines, but "plate" tracery seldom used, 'perpendicular" tracery final development, and specially characteristic of English work.

Circular windows are not much used in England, but are found at Westminster and Durham.

D. **Roofs** of moderate pitch, approaching to flatness in later periods.

Lead coverings generally employed. Carpentry is more advanced. Single framed timbers are used.

Ornamental wooden roofs were more highly developed than in France (No. 85). Fan-tracery vaulting (Nos. 84 and 99) peculiar to England.

English vaults have level ridges and have ridge ribs in both directions. A heavier section is employed, and this backbone, given to the vaulting by such ridges, may be traced to the influence of carpentry (No. 83).

The joints of the web are often parallel to the wall rib or at right angles to a dividing line, starting from the angle of the compartment to the centre of diagonal.

E. **Columns.** The clustered shaft is a special feature (No. 112).

The early adoption of shafts as expressive of the vault lines and

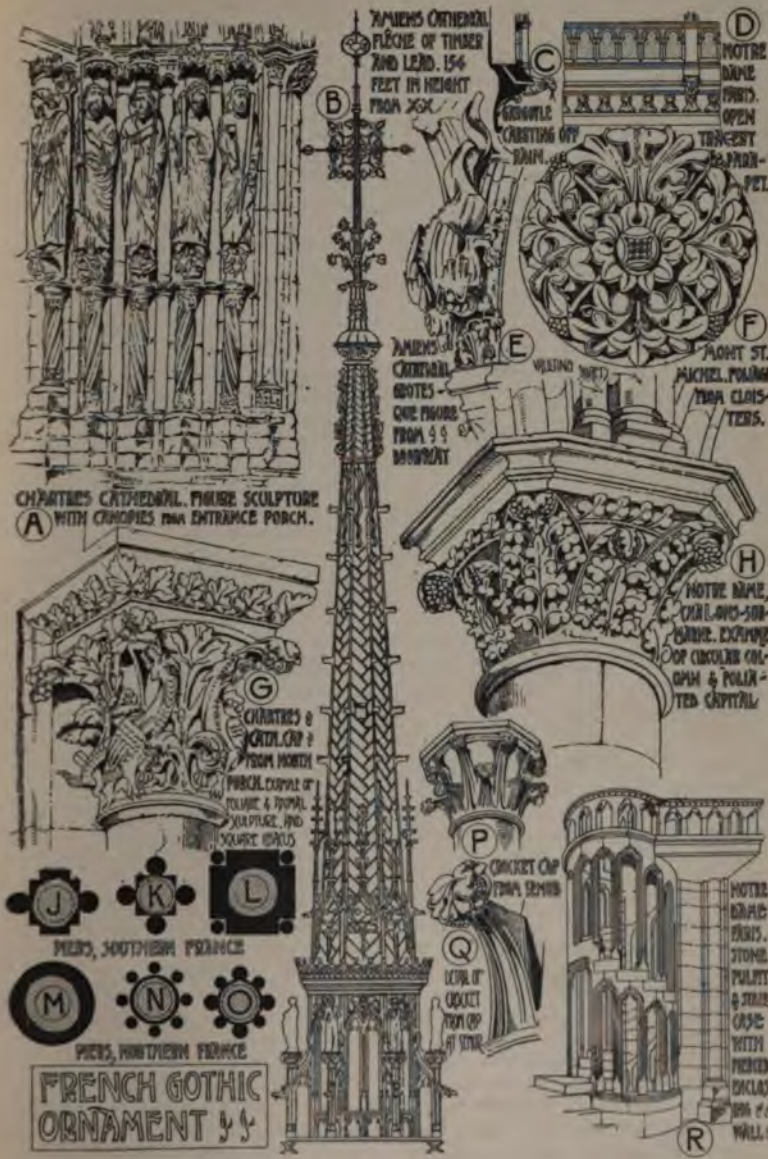


124. House of Jacques Cœur, Bourges.





125. Palais de Justice, Rouen. Flamboyant 14-15th C


AMIENS CATHEDRAL FLÈCHE OF TIMBER AND LEAD. 154 FEET IN HEIGHT FROM XX
B
C
GROTESQUE CARVING ON TRIFORIUM
D
NOTRE DAME PARIS. OPEN TRACERY BALUSTRADE PARAPET.
F
MONT ST. MICHEL. FROM THE CLOISTERS.
AMIENS CATHEDRAL GROTESQUE FIGURE FROM XX BUTTRESS
E
CHARTRES CATHEDRAL. FIGURE SCULPTURE WITH CANOPIES FROM ENTRANCE PORCH.
A
H
NOTRE DAME, CHALONS-SUR-MARNE. EXAMPLE OF CIRCULAR COLUMN & FOLIATED CAPITAL
G
CHARTRES CATH. CAP FROM NORTH PORCH. CORBEL OF FOLIAGE & FIGURE SCULPTURE, AND SQUARE ABACUS
P
CROCKET CAP FROM SENLIS
Q
LEAF OF CROCKET FROM CAP AT SENS
J
K
L
PIERS, SOUTHERN FRANCE
M
N
O
PIERS, NORTHERN FRANCE
R
NOTRE DAME PARIS. STONE PULPIT & STAIR-CASE WITH PIERCED BALUSTRADE & WALL
FRENCH GOTHIC ORNAMENT

| FRENCH GOTHIC. | ENGLISH GOTHIC. |
|---|---|
| have foliage of the Corinthian type. There was a difficulty in bringing down the lines of the vaultings with this type, and we find clumsy expedients in use, as when the shafts started just above the square abacus of the arcade columns (No. 119). In the south is found the square pier with attached half-columns (No. 126, J, K, L). | the composition of them, being taken as the basis of the pier, avoids any such difficulty (No. 92). In France, however, the mouldings of the pier arches often die into the pillars without capitals, as at St. Lo. In England the development of moulded piers was a final feature. |
| F. **Mouldings.** — Less bold and rich. Often kept some distance from window openings. Early application of stiff leaf foliage to capitals, classic type of foliage lasting well into the period (No. 126). The square abacus is a great French feature (No. 126 G, H). The moulded "bell" capitals without foliage rarely met with, except in Normandy. The crocket capital (No. 126 P, Q) a characteristic feature. French work being on a larger scale, features are rougher, and less attention is paid to detail. | F. **Mouldings.** — A special striving for the development of mouldings in capitals and arches. The moulded bell capital obtains in England (No. 112), but early carved caps are notable (No. 113), having stiff-leaved foliage. The English abacus is round or octagonal as a rule (No. 113). The "dog-tooth" ornament (No. 111 A) so common in the Early English period of Gothic architecture does not occur in French work. The small scale of English work led to greater refinement and attention to detail. |
| G. **Ornament.** — Decorative figure sculpture best exemplified at Chartres (No. 126 A), and Nôtre Dame, Paris. Carving of animals and birds also much used (No. 126 G). In early stained glass there was a fine development, Chartres possessing so many examples as to give an idea of the general effect of an interior, when completed, according to the intent of the artists of the epoch. Depth and strength, in a prevailing tone of blue tending to violet, is the impression produced. Colour work seems to have fully developed, and it would appear that hangings were imitated in painted wall decorations. | G. **Ornament.** — English decorative sculpture is best seen at Wells, Lichfield, and Westminster, the west front of the former being perhaps the most complete in England. The few early windows of Canterbury (see under E. English) remain as a proof of the capabilities of the style. The development of painted glass is explained under each section in the chapter on English Gothic. Colour appears to have been applied to sculpture. In the early period it probably followed on French examples. The coloured roofs of the perpendicular period are notable. |

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# BELGIAN AND DUTCH GOTHIC.

"The darkened roof rose high aloof,
On pillars lofty and light and small;
The keystone that locked each ribbed aisle
Was a fleur-de-lis or a quatre-feuille;
The corbels were carved, grotesque and grim,
And the pillars with clustered shafts so trim,
With base and with capital flourished around
Seemed bundles of lances which garlands had bound."—SCOTT.

## I. INFLUENCES.

**i. Geographical.**—This small kingdom lies across the country, wedged in, as it were, between the Germanic and Romanic elements of the European peoples. We shall expect to find, therefore, dual influences in its architectural development, Belgium being under French, and Holland under German influence.

**ii. Geological.**—The district abounds with clay for the making of bricks. The consequent effect upon the architecture was of course considerable, being specially noticeable in domestic work, as in the small house façades in the towns.

Granite is also available, the cathedral at Tournai being wholly of that material.

Stone is used in Brussels Cathedral and other instances.

**iii. Climate.**—Resembles England, but is more excessive in heat and cold.

**iv. Religion.**—Refer to France and Germany.

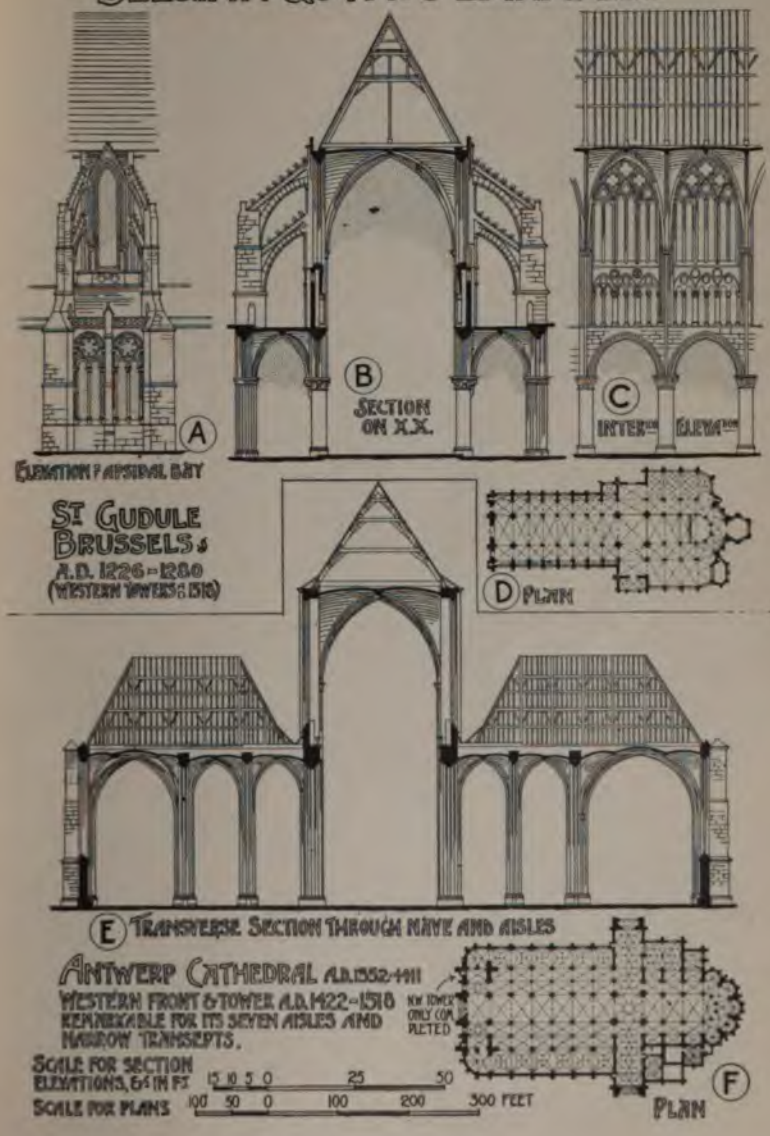
**v. Social and Political.**—The mediæval architecture of these countries developed with the social progress of the people. Towns with independent municipalities rivalled each other in the arts of war and peace, hindering the development of an especially national style of architecture. The prosperity and wealth of the people gave rise to buildings, notably Guildhalls and Town Halls, large in conception and rich in detail, reflecting the wealth and prosperity of the merchants and weavers of Antwerp, Louvain, Ghent, and other cities.

**vi. Historical.**—Flanders, as a fief of France, became by



127. Antwerp Cathedral.

# BELGIAN GOTHIC EXAMPLES



marriage joined to Burgundy. Under the dukes of Valois, themselves descended from the French kings, the whole of the Netherlands and Belgium were brought together under the rule of these dukes. During the Middle Ages the cities of the Low Countries were the richest and most powerful in Europe, and were constantly at war with one another.

## 2. ARCHITECTURAL CHARACTER.

The Dutch character of simplicity is translated into their architecture; their churches are barn-like, and contrast with the richly-treated town halls of Belgium.

The hilly, or eastern, portion of the country partook of the influence of German work, while the flat, or western, portion (Flanders) naturally fell under the influence of French work.

## 3. EXAMPLES.

### CATHEDRALS.

The cathedrals of **Tournai, Ypres, Brussels** (No. 128) and **Antwerp** (Nos. 127 and 128 E, F) are among the more important, and show a general inclination to French ideas, in their "short and wide" plan. The seven aisles at Antwerp are to be noted (No. 128 F). The cathedral of Tournai well illustrates three successive periods. The nave is Romanesque; the transepts, with four towers and a lantern, and bold apsidal termination, is in the transition style; and the choir is fully developed Gothic, very light and elegant in character. The whole cathedral is built of granite.

### CIVIL AND DOMESTIC ARCHITECTURE

show still more the independent and prosperous condition of these mediæval towns. The possession of a "beffroi" (belfry) attached to the town hall was an important privilege granted by charter; the lower portion was of massive construction, and was used as a record office. The beffroi at Bruges is one of the most picturesque of these towers; it is 300 feet high, and forms a landmark for many miles round (No. 129).

The **Town halls** are also exceptionally fine; those at Brussels, Bruges, 1377 (No. 129), Louvain, 1448–1463) and Ghent (No. 130) being the more important. Many are designed on the same lines, and are of several storeys in height, surmounted by a high roof with dormer windows in tiers. The central portion is carried up as a tower, with a richly ornamented spire (No. 129).



129. Town Hall, Bruges.

The illustration of the **Town hall at Ghent** (No. 130) is a somewhat striking example of comparative architecture, the Gothic portion, on the right hand, contrasting with the Renaissance on the left hand.

The **trade halls** for buying and selling merchandize, and specially cloth, for which the country was renowned at this period, are also very characteristic, the Cloth Hall at Ypres (1304) being exceptionally fine.

The **guildhalls**, or meeting-places for the separate trades or guilds, which were very powerful, were also built, as in the market-place of Brussels, where several examples can be seen.

## 4. COMPARATIVE.

A. **Plans.**—As noted in the examples, short and wide plans after French models are adopted in the cathedrals. Antwerp has seven aisles (No. 128 F). The French *chevêt* is adopted.

B. **Walls.**—In domestic work the long, unbroken façades are to be noticed, and the greater symmetry and regularity of the scheme which has somehow come to be regarded as a non-Gothic quality. In reality these great halls, as at Ypres, are a class of building that the condition of the people elsewhere did not necessitate. Compare their free and open appearance with the halls of Florence and Siena.

C. **Openings.**—The windows are richly ornamented with sculpture, tracery, and panelling. Similarity and regularity in position are marked features in these large buildings.

D. **Roofs.**—In domestic work roofs are of steep pitches, and are either hipped (No. 130) or ended by crow-stepped and traceried gables of picturesque outline. Numerous turrets, and bold chimney stacks, combine with the tiers of dormers to complete the rich profusion of the walls below.

E. **Columns.**—The use of round pillars in the nave, instead of clustered piers, is well exemplified at St. Rombaut, Malines. In the town hall arcades a strange trick may be seen: a column is omitted by hanging up any two arches by means of a long keystone from a concealed arch, as at Liège.

F. **Mouldings.**—Coarse profusion is characteristic of Belgian Gothic; neither the vigour of French, nor the grace of English, mouldings must be looked for in the buildings of this style.

G. **Ornament.**—In St. Waudru, at Mons, blue stone is combined with a red brick filling-in of the vault, in a scheme of permanent decoration. St. Jacques at Liège is fully decorated with paintings of a rather later date.

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130. TOWN HALL, GHENT.



# GERMAN GOTHIC.

" Some roods away, a lordly house there was,
Cool with broad courts, and latticed passage wet
From rush flowers and lilies ripe to set,
Sown close among the strewings of the floor;
And either wall of the slow corridor
Was dim with deep device of gracious things;
Some angels' steady mouth and weight of wings
Shut to the side; or Peter with straight stole
And beard cut black against the aureole
That spanned his head from nape to crown; these
Mary's gold hair, thick to the girdle tie
Wherein was bound a child with tender feet;
Or the broad cross with blood nigh brown on it."

## 1. INFLUENCES.

**i. Geographical.**—The boundaries of Germany are due to racial differences on the south, west, and east.

**ii. Geological.**—The plains of Northern Germany produce no building material but brick, and its influence on the architecture in these regions is to be noted.

The materials in the geological divisions are:

| Brick, | Stone, | Timber, |
|---|---|---|
| N. and N.E. | Centre and S. | N.W., Hanover, etc. |

**iii. Climate.**—See under German Romanesque (page 176).

**iv. Religion.**—The most interesting feature in the religious life of Germany, prior to the Reformation, is the civil, as well as ecclesiastical, rule of many of the bishops. Some of these episcopal principalities were not finally abolished until the period of the French Revolution.

**v. Social and Political.**—Trade guilds acquired great importance during this period, that of the masons, an organization called the Freemasons, having been credited with the design and working out of the style. In the absence of records, the truth as to the individuality of the architects will not easily be made out.

**vi. Historical.**—In the twelfth and thirteenth centuries

Germany was the heart and centre of the Western Empire. Under the Swabian Emperors long wars occurred with the Lombard league of the north Italian towns. The years 1254–1274, known as the "great interregnum," because no king was universally acknowledged by all Germany, were times of great confusion and lawlessness, until the house of Hapsburg came into power in 1273.

*The "Hanseatic league,"* an alliance of the great commercial towns of North Germany, exercised considerable influence on the peaceful arts.

## 2. ARCHITECTURAL CHARACTER.

The Gothic architecture of Germany was borrowed directly from France, and is not a pure development of the Romanesque, as in the latter country. This may be ascribed to the monumental character of German Romanesque buildings, which had been developed to a greater extent than the Romanesque in other countries.

Gothic was, therefore, reluctantly adopted in Germany, at the time when it was attaining its great perfection in France, and the Romanesque precedents were long adhered to.

In Northern Germany, in the valley of the Elbe, a brick architecture was developed, as at Lubeck and the neighbouring cities, which, although not equalling that in the valley of the Po, has that special character belonging properly to the material, although expressed in a somewhat meagre manner.

## 3. EXAMPLES.

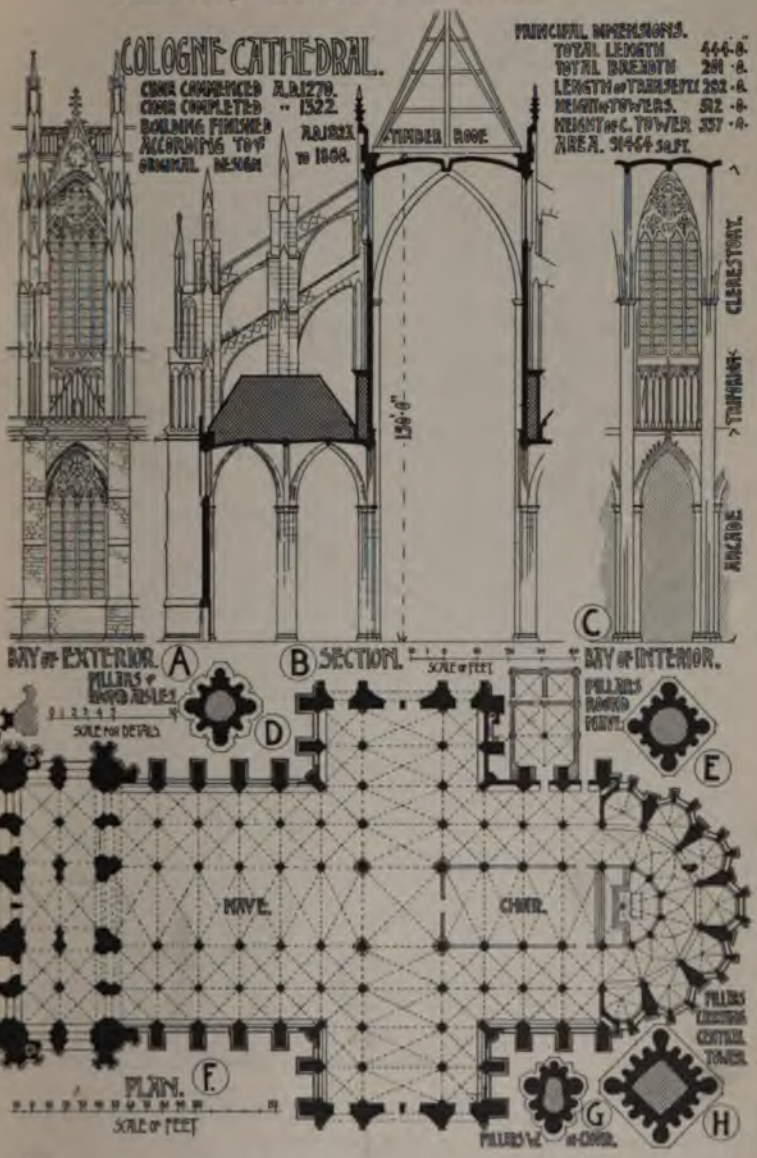
### CATHEDRALS.

**Cologne Cathedral** (begun 1270) should be regarded as the great cathedral in this style (No. 82 c), and the student should notice the resemblance in plan (No. 131) and dimensions with that of **Amiens** (No. 120).

**Strasburg Cathedral** (1240–1365) has two western towers (No. 115 E), a large rose window at west end, and double tracery in the windows (*i.e.*, tracery in two planes). The open work tracery spire dates from 1429. The character of the detail is somewhat "wiry." The cathedral was built by

> "A great master of his craft,
> Erwin von Steinbach; but not he alone,
> For many generations labour'd with him.
> Children that came to see these saints in stone,

# GERMAN GOTHIC EXAMPLES I.



As day by day out of the blocks they rose,
Grew old and died, and still the work went on,
And on and on and is not yet completed.
. . . . The architect
Built his great heart into these sculptured stones,
And with him toiled his children, and their lives
Were builded with his own into the walls
As offerings to God."—LONGFELLOW.

**Ratisbon Cathedral** (1275–1534) (No. 132), the open spires added in 1859–1869, has a regular plan, octagonal apse without ambulatory, and western towers. Notice the peculiar little triangular porch.

**Ulm Cathedral** is notable for the small ratio of support in regard to its floor space. It has a polygonal eastern apse without ambulatory. It is spacious and lofty; only one western tower is carried up. It has an arcaded gallery to the eaves, a remnant from Romanesque traditions, and fine choir stalls.

**St. Elizabeth, Marburg** (1235–1283) (No. 133), is the typical form, known as the "Hall Church." The result of raising the side aisles, as shown, was to abolish the triforium and clerestory, to reduce the importance of the nave, and to do away with the necessity for flying buttresses, while rendering the interior more spacious.

**Munich Cathedral, St. Barbara, Kuttenberg,** and **St. Martin, Landshut** (1404), are other examples of this type.

**St. Stephen, Vienna** (1300–1510).—This splendid church has the following peculiarities of the style (Nos. 82 D, 133 and 134): There is no clerestory or triforium; the three aisles are nearly equal in width and height, and one great roof covers the whole in one span. Tower porches occupy the position of transept; the completed one has a splendid spire, less open than usual in German work; the vaults are traceried, and the original stained glass exists.

**Lubeck.**—The **Cathedral** (choir and aisles) and the **Marien Kirche** are types of the brick architecture of North Germany, and express the possibilities of design in that material.

## DOMESTIC ARCHITECTURE.

*Castles* were erected in goodly numbers, as at *Marienburg* (1280), *Heilberg* (1350), and the Albrechtsburg at Meissen in Saxony (1471–1483).

**Town Halls** at Brunswick, Hildesheim, Halberstadt, Münster and Ratisbon are the best known.

The *Rathhaus* (Town Hall) at *Lubeck* and other cities, and the

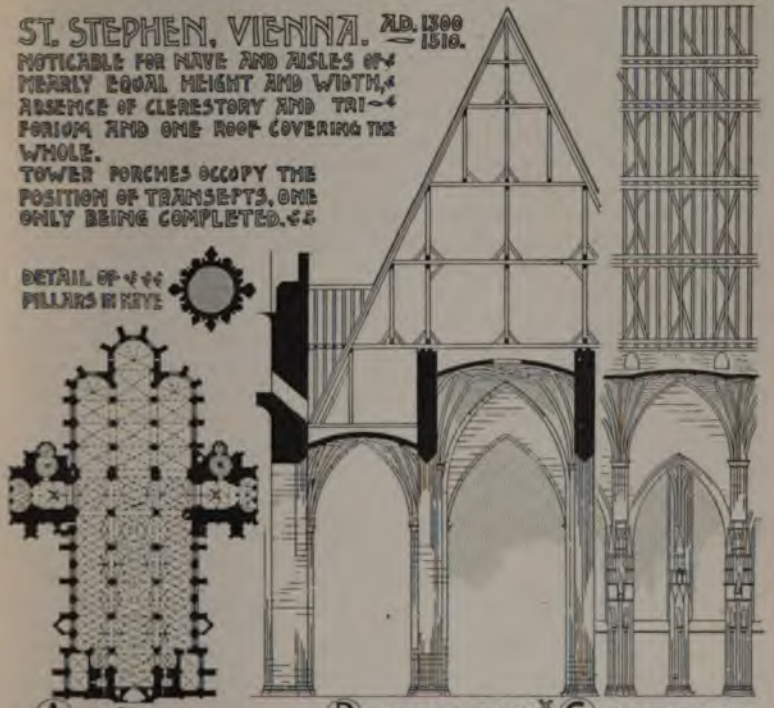


132. RATISBON CATHEDRAL.
West Front.

# GERMAN GOTHIC EXAMPLES II.

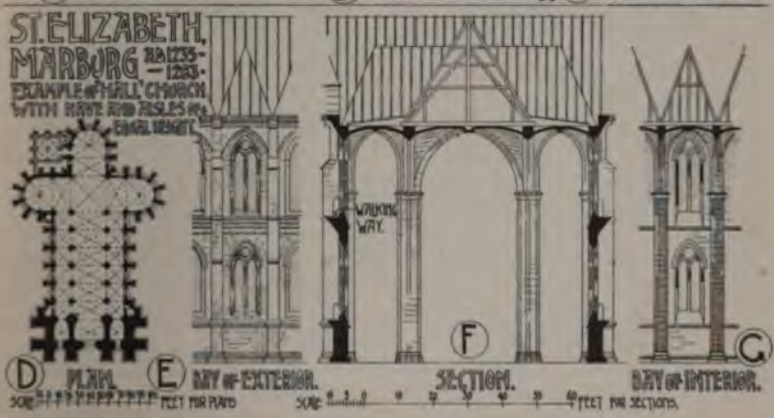
## ST. STEPHEN, VIENNA. A.D. 1300 — 1510.

NOTICABLE FOR NAVE AND AISLES OF NEARLY EQUAL HEIGHT AND WIDTH, ABSENCE OF CLERESTORY AND TRIFORIUM AND ONE ROOF COVERING THE WHOLE.
TOWER PORCHES OCCUPY THE POSITION OF TRANSEPTS, ONE ONLY BEING COMPLETED.




## ST. ELIZABETH, MARBURG A.D. 1235 — 1283.

EXAMPLE of "HALL" CHURCH WITH NAVE AND AISLES of EQUAL HEIGHT.



town gates of the Baltic provinces, are evidences of the prosperity of this period.

In domestic work of the period the roof was a large and important feature, and frequently contained more storeys than the walls below it. It was used as a "drying ground" for the large monthly wash, and planned with windows to get a through current of air.

In towns the planning of the roof-ridge parallel, or at right angles, to the street influenced the design considerably. (See under German Renaissance).

At **Nuremberg** the ridge is generally parallel to the street; dormer windows are plentiful; party walls are apparent, and artistically treated.

At **Landshut** and elsewhere, the ridge being generally at right angles to the street, gables are the result, and these exhibit great variety of design in scrolls, etc.

The dwelling-houses of early date in **Cologne**, with their stepped gables, are notable.

## 4. COMPARATIVE.

A. **Plans.**—Apses are often semi-octagonal, and found at the end of transepts, and at the east and west ends of churches (No. 133).

The *chevêt* is uncommon, though it occurs at Cologne (No. 131), Magdeburg (1208-1211), Lubeck, Freiburg, and Prague.

Triapsal plans are a favourite feature (No. 133 D). A square outline to the general plan is not uncommon.

Twin towers occur at west end at Ratisbon, as in France (No. 132). In later work, sometimes only one central tower occurs, as in England.

Entrances are often on north or south, and not at the west end. They are sometimes carried up as towers, and take the place of transepts.

Towers are continued from the last period, the junction of the spire is often insufficiently marked, and the outline, though ornamented, is weak. Open-work tracery spires indicate the same liking for this feature which is seen in the Rhenish Romanesque churches. The typical examples are Strasburg (1429) (No. 115 E), Freiburg (1300), Ratisbon (No. 132), Cologne (No. 82 C), and Vienna (No. 134) Cathedrals.

B. **Walls.**—The apsidal galleries of the Romanesque style are copied, without reference to their origin and meaning. Tracery is employed as an outer wall surface, and its mullions often cut across the openings behind.



134. St. Stephen, Vienna.

Lubeck in the north is the centre of a brick district, and churches of this material abound; they are also found in Bavaria and at Munich.

C. **Openings** (No. 135 E, F).—Tracery was elaborated, double tracery windows being used in later examples.

Excessive height is a characteristic. The use of two tiers of windows is due to the lofty aisles (No. 133). In the north the clerestories are excessive in size, starting as low down as possible, to provide a great expanse of stained glass.

D. **Roofs.**—Churches nearly always vaulted, but are sometimes covered only with a wooden roof.

Great attention was paid to the vaulting, both as regards its size and excellence of construction.

Square vaulting bays were often adhered to, including two aisle bays. Vaulting in oblong bays afterwards became general, as at Freiburg, Ratisbon, Cologne, and Oppenheim.

The special German feature is the immense roof, covering nave and aisle in one span (No. 133). This is due to the side aisle being made as high as the nave, the recognized German type known as the "Hall Church" (No. 133 F). Tower roofs of the Romanesque form continue.

E. **Columns.**—Piers are usual in interiors, as in England, and not the columns found in early French work (Nos. 131 and 133). The tendency is to make them lofty posts carrying the roof, again owing to the height of the aisles.

F. **Mouldings.** — Complexity rather than simplicity was striven after. *Interpenetration* of mouldings (fifteenth century) was a very characteristic treatment, and consisted of two different sets of mouldings, appearing and disappearing in and out of the same stone, specially in bases, etc. Each member, after passing through another, is traced out and provided with its own base and cap, etc. Much patience is bestowed upon the intricacies that resulted from such interpenetrations.

Features such as pinnacles increase in size as they get higher, and therefore scale is destroyed, as at Cologne.

Features do *not* increase in size in English and French work.

G. **Ornament** (No. 135).—Foliage was treated in a naturalesque manner, and the interlacing of boughs and branches is a common feature (No. 135 A, C, J).

In general, the carving was superior to the design, the tracery of later windows sometimes representing the branches of trees ("branch tracery"), in which technical display was more considered than grace of outline.

In fittings the Tabernacle, or Sacrament House, was developed as a separate structure placed at one side. Late examples are

# GERMAN GOTHIC ORNAMENT.



A

CANOPY CAPS. FREIBURG CATHEDRAL.



F

DOORWAY, COLOGNE. PIERCED GABLE OVER.



B

CAPS. ST. PAUL'S, WORMS.



C

CANOPY CAPS, FREIBURG CATHEDRAL.



D

PARAPET, COLOGNE.

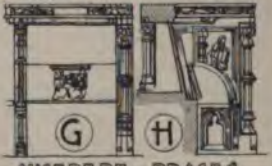


E

DOORWAY, GELNHAUSEN.



M



G H

MISERERE, BRUGES.



J

CORBEL CAP, COLOGNE.



K GARGOYLES, COLOGNE. L TOMB, MARBURG. LANDGRAVE HENRY II.

lofty and tower-like, tapering upwards in many stages of wonderfully complicated work. Stained glass and ironwork are well treated.

The enforced use of brick in the north was unsuitable to the employment of sculptured work, and in its place moulded and coloured brickwork was used as a means of decoration. The interiors are plain and bare in character.

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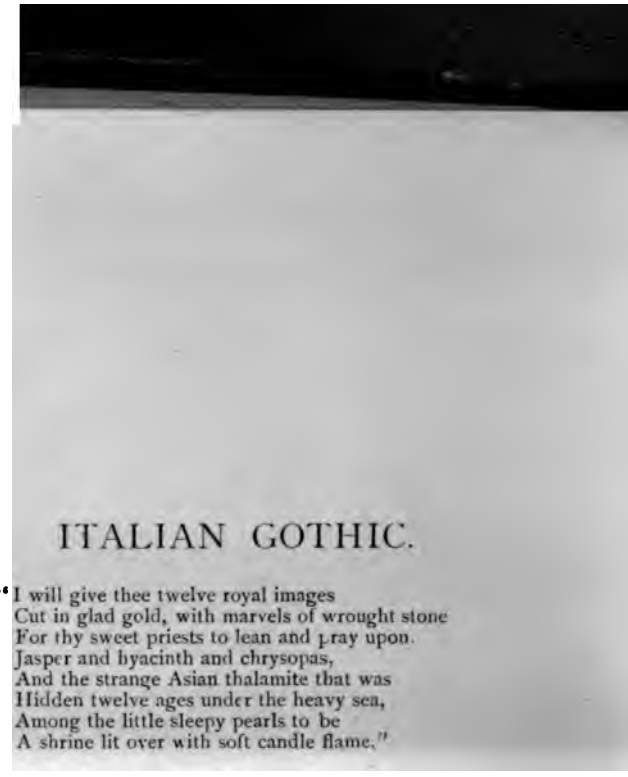
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# ITALIAN GOTHIC.

"I will give thee twelve royal images
Cut in glad gold, with marvels of wrought stone
For thy sweet priests to lean and pray upon.
Jasper and hyacinth and chrysopas,
And the strange Asian thalamite that was
Hidden twelve ages under the heavy sea,
Among the little sleepy pearls to be
A shrine lit over with soft candle flame."

## 1. INFLUENCES.

**i. Geographical.**—We should note the German influence in Lombardy through the connection of this part of Italy and Germany geographically by the Brenner Pass. The work at Venice is similarly influenced by an oversea trade connection with the East.

**ii. Geological.**—The influence of materials in the development of this style is important. The coloured marbles of northern and central Italy supplied abundant and beautiful material for the elaboration of plain wall treatment, as we see in Florence (No. 142), Siena (No. 143), Genoa, Orvieto, Lucca, and other places. Red, black, and white marbles were used in stripes, and also in panels, the architect relying for effect upon their colour and disposition alone.

The brick and terra-cotta of northern Italy has left a decided impress on the architecture of that district, many large buildings, such as the Hospital at Milan and the Certosa at Pavia, having been erected in these materials.

**iii. Climate.**—The influence of climate and the brilliant atmosphere is apparent in the small windows, which, with thick walls, were necessary to keep out the glare and heat of the Italian sun. The development of tracery was of course hindered by the same cause.

The preference for opaque treatment, such as mosaic work and fresco decoration, was inherited from the Romans, while the climate counteracted effectually any desire the Italians might



136. Milan Cathedral.
East End.

have had for the suppression of the walls by the employment of large windows of stained glass, for the reasons mentioned above.

**iv. Religion.**—The real power of the Pope as head of the Western Church died with Gregory X. (1271–1276). The following Popes were under the influence of the King of France, and for seventy years (1309–1376) they resided at Avignon, losing authority and influence, during their absence from Rome. Rival Popes existed until a settlement was arrived at by the Council of Constance, held 1415. The factions of the Guelphs and Ghibellines (see under Germany) distracted Italy from 1250 to 1409, a subject well treated by Mr. Oscar Browning in his "Mediæval Italy."

**v. Social and Political.**—Italy at this period was cut up into small principalities and commonwealths, in which political life was full of rivalry and activity, and small wars were of constant occurrence. The erection of the Cathedrals of Siena, Orvieto, Florence, Milan and Lucca was largely due to the civic pride of the various rival cities, while the numerous Town Halls attest the growth of municipal institutions. Tasso has a line to the effect that each holiday they blew the trumpets, and proceeded to sack the adjoining town. Yet other countries looked to Italy as the head in arts, learning and commerce. The poet Dante (1265–1321) lived during this period, and his great poem is a summarized picture of the age.

The revival of learning took place in Italy nearly a century in advance of northern Europe.

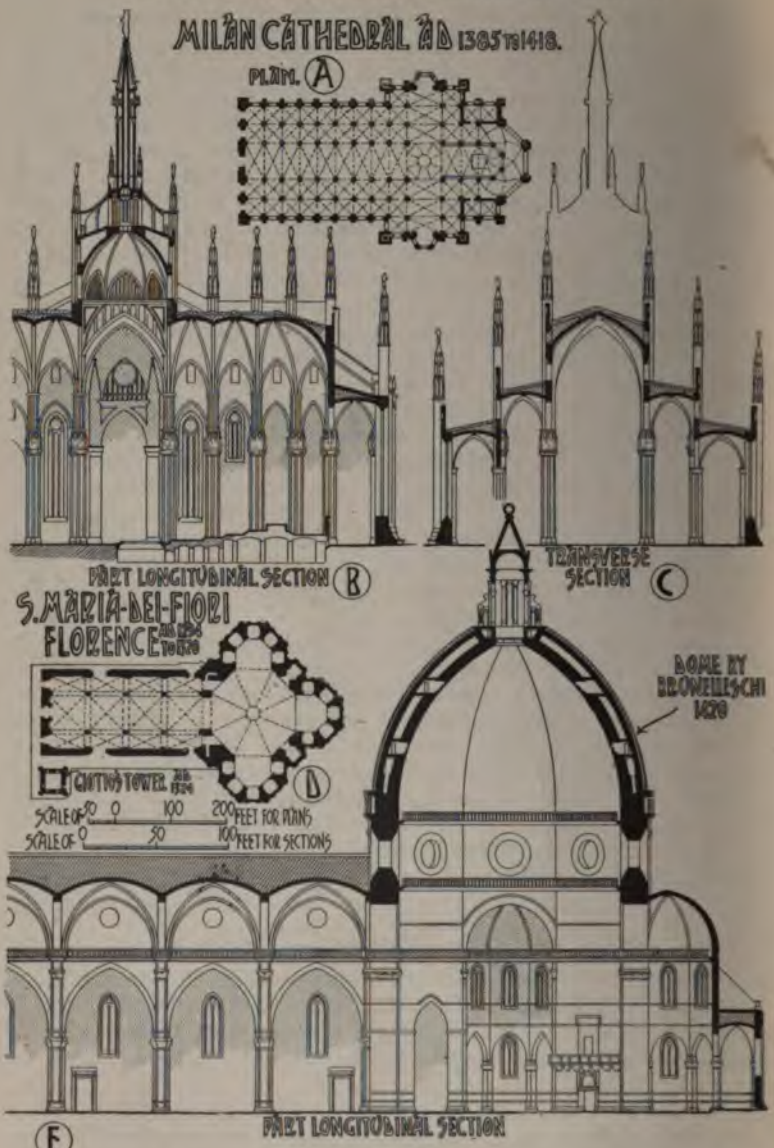
**vi. Historical.**—In the thirteenth century the Visconti ruled at Milan, and in consequence of the wealth and industry of the cities over which they ruled the Dukes of Milan were very powerful. The maritime commonwealth of Genoa considerably reduced the power of Pisa in 1284, and the latter was conquered by Florence in 1406. Florence became one of the chief states of Italy under the powerful family of the Medici (see under Renaissance, page 316).

## 2. ARCHITECTURAL CHARACTER.

The influence of Roman tradition, and classic forms of construction and decoration, was so great that the verticality which marks the Gothic architecture in the north does not pervade the Italian or southern examples to the same extent as in those we have been considering.

In the exteriors of the churches we notice especially the flatness of the roofs (Nos. 142 and 143); the tendency to mask the aisle roofs on the west façade, which was treated as a mere screen wall,

# ITALIAN GOTHIC EXAMPLES I.





138. MILAN CATHEDRAL.
Interior, looking East.



139. The Doge's Palace, Venice. – Venetian Gothic
1280-1450

without reference to the slope of the roofs behind (No. 143); the great central circular window in the west front lighting the nave; the flatness and comparative unimportance of the mouldings, their place being more than taken by the beautiful coloured marbles with which the façades were faced, and the broad surfaces covered with fresco decorations.

The importance of the crowning cornice (No. 142), and the absence of pinnacles due to the unimportance of the buttresses, should be remarked; also the employment of elaborately carved projecting porches at the west end, the columns of which often rest on the backs of lions and other animals.

> "Stern and sad (so rare the smiles
> Of sunlight) looked the Lombard piles;
> Porch pillars on the lion resting,
> And sombre, old, colonnaded aisles."—TENNYSON.

Sculpture wherever used partakes of classical purity, and is so far superior to that exhibited in northern examples, but it enters far less into the general composition and meaning of the architecture. The Roman acanthus and Corinthian capitals of modified form were constantly used in Gothic buildings (No. 145).

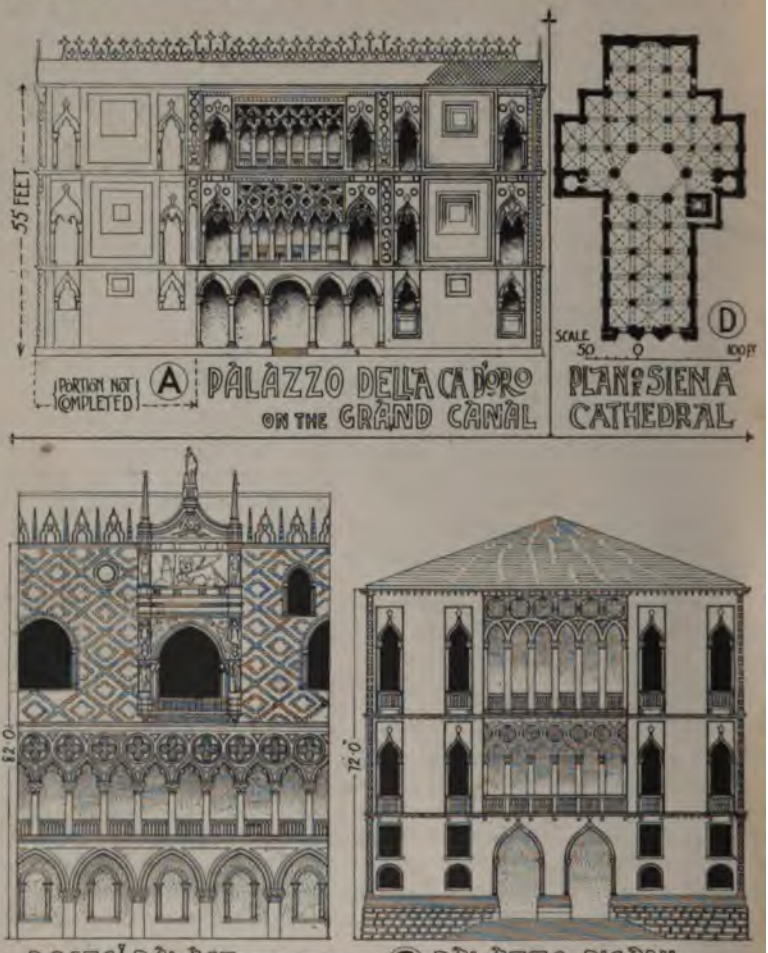
Mosaic was also used externally in panels, in continuation of early ideas and practice.

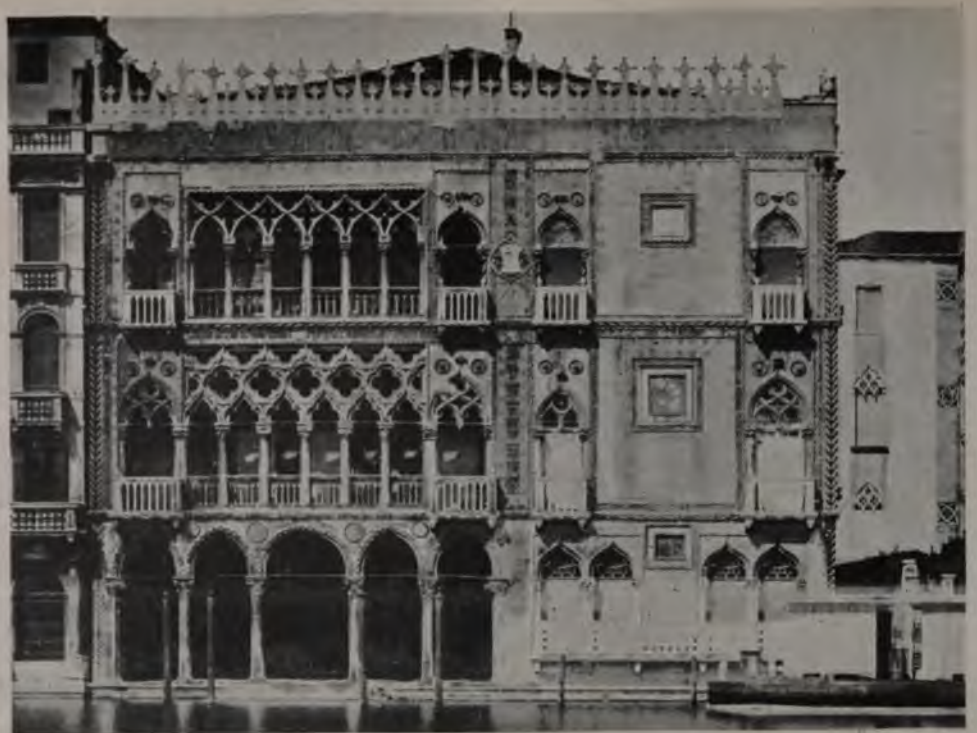
In the use of terra-cotta and brickwork, the plastic state of the material rendered abundance of ornament easy of application, and a smallness of detail followed, which was eminently suited to the material, as, for example, at the Frari Church at Venice and elsewhere.

The treatment of moulded brickwork has never been carried further to perfection than in North Italy during the Gothic and Early Renaissance period, especially in civic buildings. The effect of sublimity is perhaps not to be obtained in so small a material unless used in the broad massive manner of the Romans. On the other hand, there is no beauty of detail or of design on a small scale that may not be obtained by the use of moulded bricks, which, if carefully burnt, are as durable as most kinds of stone.

The Italian use of brickwork was essentially the right one; the details were small and designed with taste, and the effect of variegated colour was relied on instead of depth of shadow—a perfectly legitimate use of light and shade and warmth where small materials are used, and in which stone of different colour is carried systematically in patterns through the design, and gives a special character, as at Verona. A flatness and want of shadow is necessarily characteristic of brick buildings, sufficient

# ITALIAN (VENETIAN) GOTHIC EXAMPLES II.





141. Palazzo Della ca D'oro.

On the Grand Canal. – Venetian Gothic 1300-1450

projection not being obtainable for cornices; but such can scarcely be deemed a fault in the material. It was, however, always tolerated by the Italians, who allowed the material to express its own capabilities without trying to disturb its architectural function.

## 3. EXAMPLES.

### NORTH ITALY.

**Milan Cathedral** (Nos. 136, 137 E and 138) is the most important work erected in Italy during the Middle Ages (A.D. 1385–1418), and we shall notice especially the German influence, both in character and details. It is the largest mediæval cathedral, with the exception of Seville, and is built entirely of white marble. The roof is very flat in pitch, being constructed of massive marble slabs, laid upon the upper surface of the vaulting.

In plan it consists of a nave with specially small clerestory, and of double aisles of extreme height; the nave terminates with a circlet of columns in the French manner, but this is inclosed in a German polygonal apse. To the Ambrosian ritual is due the absence of side-chapels in the original scheme. At the crossing of the nave and aisles is placed a vault crowned with a marble spire, designed by Brunelleschi in A.D. 1440. The feature of the interior is the range of immense shafts to the nave (No. 138), whose summits are treated with canopied niches, filled with statues, in the place of the ordinary capitals. Externally, the character of the whole design is expressive of richness and lace-like intricacy, which is aided in effect by the numerous pinnacles of glittering marble (No. 136).

> "O Milan, O, the chanting quires;
> The giant windows' blazon'd fires;
> The height, the space, the gloom, the glory!
> A mount of marble, a hundred spires."—TENNYSON.

The absence of stone and influence of brick on the architecture of the district is exemplified in the **Certosa at Pavia**, commenced in 1396—note the central lantern in stages, crowning an internal dome—and the great **Hospital at Milan**, where terra-cotta is largely used. The churches and palaces at Bologna, Vicenza, Padua, Verona, Cremona, and Genoa contain specimens of brick architecture with pleasing detail, moulded in this material.

**Venice** is remarkable for the civic and domestic architecture of this period. In this connection we must remember the prominent position Venice occupied as a great trading centre

in the Middle Ages; also the supremacy of her navy, and, in consequence, her power and richness.

"Where Venice sate in state, throned on her hundred isles."

*Note.*—St. Mark's, Venice, is described under Byzantine (page 137).

The Dominican church of **S. Giovanni e Paolo** (1260–1400) and the Franciscan church of **S. Maria Gloriosa dei Frari** (1250–1280) are magnificent churches showing the influence of the Monastic orders. The latter was by Niccolo Pisano, and is of the Basilican type, with six eastern chapels. It has a fine campanile adjoining the church as at Siena (No. 143).

**S. Anastasia, Verona** (1261), and **S. Andrea Vercelli** (1219) are notable examples; the latter is peculiar in having two western towers, and in having an English type of plan.

The **Doges' Palace** (Nos. 139 and 140 B) (façade A.D. 1424–1442, by Giovanni and Bartolommeo Buon) is the grandest effort in civic architecture of the period. Each façade consisted of an arcade of two storeys, one above the other, which originally encircled the main building, but now supports the external wall of the upper storey, which was widened in the following century. The structure is built with rose-coloured and white marble, the blank walls of the upper storey being a chequer of these colours broken by a few large and richly ornamented windows. The delicate and light carving in low relief which occurs in the capitals of the arcades is justly celebrated. Notice that the lower columns seem to rise out of the ground, having no bases; also the solid and connected character of the tracery, which gives some stability to the design, so heavily loaded above.

The excellence of marble as a material for carving is largely responsible for the refinement of execution which we find in this example.

The **Ca d' Oro Palace** (Nos. 140 A and 141) on the Grand Canal is another fine specimen of the domestic work with which Venice abounds, and is also by the Buons. The tracery especially is Venetian in character, as is also the grouping of the windows towards the centre of the façade, the extremities of the design being left comparatively solid, thus producing the effect of a central feature inclosed by wings.

Other well known examples are the Palazzi Foscari, Contarini-Fasan, Pisani (No. 140 C), and Cavalli.

*Note.*—A good general idea of the treatment of Venetian Gothic is obtained from the old front of St. James's Hall, Piccadilly, and from the building in Lothbury, opposite the Bank of England.



142. FLORENCE CATHEDRAL AND GIOTTO'S CAMPANILE.

## CENTRAL ITALY.

The **Cathedral of Florence** (1294–1462) (No. 137) is chiefly remarkable for the wide spacing of the nave arcades (each being 55 feet in span, the nave itself being 72 feet wide), the absence of pinnacles and buttresses (No. 142), and for the marble façades in coloured panelling. The absence of a triforium should be noticed. The cathedral was erected from the designs of Arnolfo di Lapo. The octagonal dome, 138 feet 6 inches in diameter, was added in Renaissance times by Brunelleschi. The façade was completed in 1887. Internally the fine effect promised by the plan is not realized. Vast masses of grey pietra serena stone, in piers and arches, are contrasted by blank spandrels of white-wash. The Baptistery (originally the Cathedral), erected in the tenth century, but remodelled by Arnolfo in A.D. 1294, is an octagonal structure faced with pilasters and richly coloured ornamentation, being further remarkable for the fifteenth century bronze doors by Ghiberti.

The adjoining **Campanile** (Nos. 137 D and 142), by Giotto, A.D. 1324, is square on plan, 292 feet high, in four storeys of increasing height, and is built in red and white marble. Tracery of an elementary character is introduced into the windows in this example, as in the adjoining cathedral. Inserted in the solidly designed lower storey are sculptured panels of great interest and beauty. Below the present tile roof the start of the intended spire can be traced.

**S. Maria Novella, Florence** (A.D. 1278), is an imposing example erected by the Dominicans, and **S. Croce, Florence** (1294), is well known.

The **Palazzo Vecchio, Florence** (1298), by Arnolfo di Cambio (with its remarkable tower), the **Palazzo Publico, Siena**, and the **Loggia dei Lanzi**, Florence (1376), are examples of the vigorous secular architecture of the period.

The **Cathedral of Siena** (No. 143) (A.D. 1243–1284) is to be remarked for its dome, which is hexagonal on plan (No. 140 D), its façade in black and white stripes, the three portals of equal size, and for the characteristic rose window. The ground falling towards the east end, allows of a crypt being formed under the sanctuary, which is used as a baptistery. The unfinished elevation of this east end is a grand design.

The **Campo Santo at Pisa** (1278–1283) is a well-known example (No. 63).

**Orvieto Cathedral** (A.D. 1290) resembles Siena Cathedral, but is notable as being imbued more considerably with Northern Gothic feeling. It is mainly of one period—the façade dates from

1310—and more harmonious in design. The nave is now restored with an open timber roof of the Basilican type.

**The Church of St. Francis at Assisi** (A.D. 1228–1253) was from the designs of a German, Jacobus of Meruan. It consists of an upper and lower church, and is very northern in detail, but it depends much more on its frescoed interior than upon its architecture proper for its magnificence and character. Both churches are vaulted, built of brick and plastered, for a complete treatment in painted decoration by Cimabue and Giotto.

In **Rome,** churches of the Basilican type were erected throughout the Middle Ages, **S. Maria Sopra Minerva** (1280) being quoted as the only Gothic church in Rome.

### SOUTHERN ITALY AND SICILY.

The influences at work in these districts have already been referred to in Romanesque (page 161). The style has been described as "Greek in essence, Roman in form, and Saracenic in decoration."

The Cathedrals at **Messina, Monreale,** and **Palermo** have plans founded on the Roman basilican type; they are not vaulted, but have timber roofs of great elaboration and intricate construction, resembling in their effect the honeycomb work of Saracenic art. The pointed arch is used, but it is square in section, and without receding planes (No. 144).

The main idea striven after in these churches is the unfettered display of mosaic decoration, in which the principal personages of the Bible are rendered in a stiff archaic style, with borders of arabesques in gold and colour.

The lower part of the walls has a high dado of white marble, with a border introducing green and purple porphyry in patterns.

**Palermo Cathedral** is a remarkable example of external architectural decoration in stones of two colours. The apses in particular should be noted. At the west end is a group consisting of a central and two lower towers of an arbitrary style in detail, but suggesting Northern Gothic in its vigour of skyline.

## 4. COMPARATIVE.

### OF NORTH, CENTRAL, AND SOUTH ITALIAN GOTHIC.

A. **Plans.**—The endeavour to create a great central space in the churches is noteworthy, as at Florence (No. 137) and Siena cathedrals (No. 143), and shows the influence of Roman times,



143. SIENA CATHEDRAL. 1350 Middle Gothic
Venetian

and Etruscan originals. The wide spacing of the piers in the nave arcades is specially noticeable.

These arcades are the feature of the interior, the triforium being usually omitted, as at Florence and Milan (No. 137), and the clerestory reduced to the unimportance of a vault spandrel, pierced by a small, and generally circular, window. These lofty arcades practically throw the aisles into the nave, and give the effect of a single hall.

The nave vaulting is frequently set out in square compartments, as at Florence and the Certosa, in which case the side aisles have oblong ones, thus reversing the Northern Gothic practice (No. 137 D).

**Towers** are usually isolated, and are square shafts, without buttresses, sometimes beautifully decorated, continuing the Romanesque tradition, and developing no spire growth, like northern examples.

The best known examples are at Florence (No. 142), Siena (No. 143), Lucca, Verona (No. 145 K), Mantua and Pistoja.

The most imposing external feature was frequently a dome, as at Siena (No. 143) and Florence (No. 142).

The central lantern tower, in diminishing stages, as at the Certosa, Pavia, Chiaravalle and Milan (No. 137), may be mentioned as an advance on the Romanesque crossing lantern, and should be compared with English work.

B. **Walls.**—The absence of large windows obviated the necessity for projecting buttresses, the high and flat walls being usually comparatively solid throughout their length, and able to withstand the pressure of a vault without them (Nos. 142 and 143). From the absence of vertical features and shadows in the façade, flatness is the predominant characteristic of the style.

Façades are treated independently as decorative compositions, and often have no relation to the structure or roofs behind (No. 143). These façades are often incomplete, being compositions in marble facing, that had not seldom to be postponed, on the score of expense. The marble is used in bands of two colours at Siena (No. 143) and Orvieto, each having three high gables, and in panelling at Florence (No. 142). This surface treatment was borrowed from the Saracens, and should be compared with northern methods, in which effect is obtained by deeply-moulded string courses, projecting buttresses, and lofty pinnacles.

C. **Openings.**—The windows are often semicircular headed, and are provided with shafts having square capitals of Corinthian type, instead of the moulded mullions of northern Gothic (No. 145 C). These slender shafts are often twisted, and even inlaid with *cosmato* work, while the caps are richly sculptured.

Venetian tracery is a special type (No. 139).

A moulded keystone is often provided to pointed arches, which are frequently inclosed by square lines as a panel.

D. **Roofs** are of low pitch, and play little or no part in the design, being scarcely visible from below (Nos. 140 and 141). Often they are in flat contradiction to the steep gables of the façades, which seem to have been borrowed from the north, and then treated solely as a field for mosaic and other elaborate decoration. Iron tie-rods were often used to prevent the spread of roof timbers owing to insufficient buttressing.

E. **Columns.**—The piers of the arcades in the churches are at times surprisingly clumsy and rude in plan; four pilasters thrown together is a common section. Round piers, with caps and bases, recalling Roman work, are also used. We do not find the continuous sequence in design in such features, as may be traced north of the Alps.

In Milan Cathedral the circular moulded piers, by their height and size, produce the effect of a columnar interior (No. 138).

F. **Mouldings.**—In mouldings notice the flatness and squareness, and the parts often little changed from Roman work. It should be observed that the section of an arch mould is often identical with that of the jamb, although there may be capitals at the impost. Mouldings are throughout subordinate to the decoration, and the most interesting are those due to the use of brick as a material.

G. **Ornament** (No. 145).—Opaque decoration was preferred to translucent; the art of fresco, by constant exercise upon the noblest subjects in the grandest buildings, led up to the golden age of Michael Angelo and Raphael. Some buildings, such as Giotto's chapel at Padua, and the Sistine chapel at Rome, are shells for painted decoration, almost devoid of architectural features. In carving (Nos. 145 A, B, E, F, G, H, L) and sculpture classic tradition leads to a refinement and an elegance which contrasts with the grotesque element found in northern work. On the other hand, the general design is often lost sight of in the attention bestowed upon accessories. It is in the carving and mosaics to the sumptuous altars and canopy tombs, in their pulpits (No. 145 B), pavements and choir stalls, and in the veneering of their façades with coloured marbles, that the decorative character of the style is best seen.

The Tomb of the Scaligers, Verona (1329–1380), is an example of rich decoration, and many of the churches at Rome have elaborate inlay work of "opus Alexandrinum" on their arches and twisted columns.



144. MONREALE CATHEDRAL.

The Cloisters.

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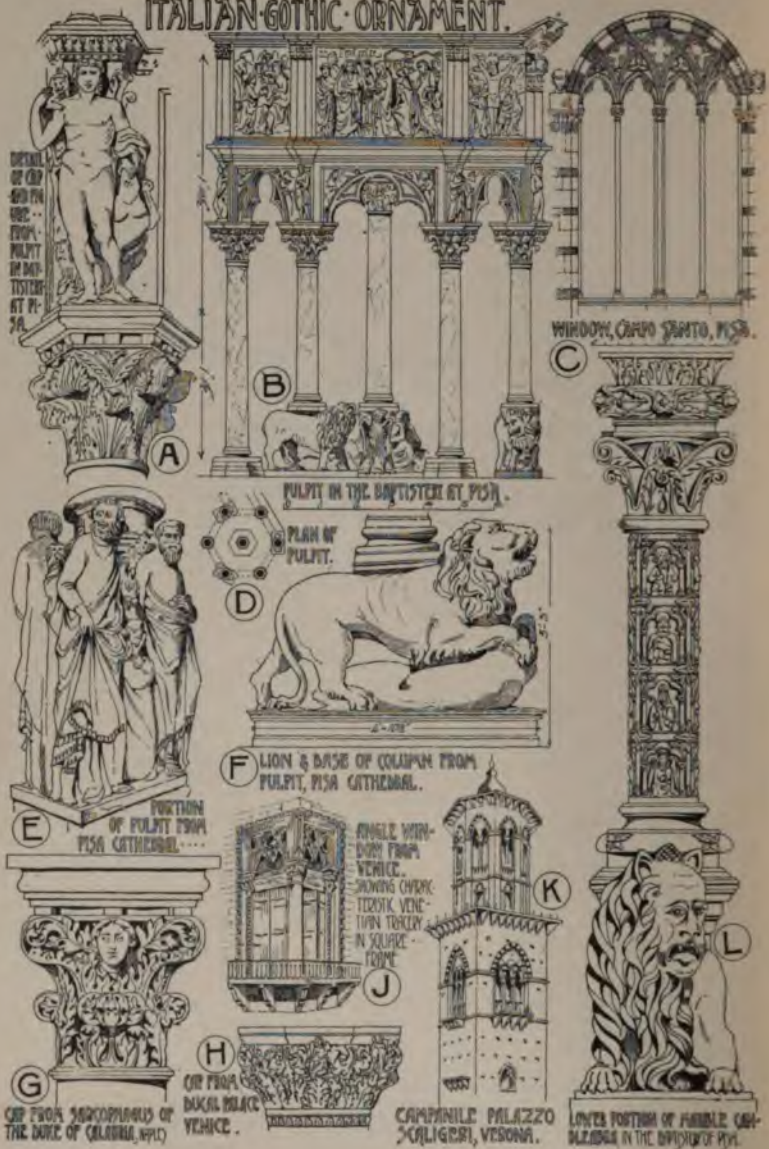
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# ITALIAN·GOTHIC·ORNAMENT.



# SPANISH GOTHIC.

'Oft let me range the gloomy aisles alone
(Sad luxury! to vulgar mind unknown)
Along the walls where speaking marbles show
What worthies form the hallowed mould below;
Proud names, who once the reins of Empire held;
In arms who triumphed, or in arts excelled:
Chiefs, graced with scars, and prodigal of blood;
Stern patriots, who for sacred freedom stood;
Just men, by whom impartial laws were given;
And saints, who taught, and led the way to heaven."—TICKELL.

## 1. INFLUENCES.

**i. Geographical.**—The architecture of Spain cannot be understood without a knowledge of its geography. The existence of rival races and kingdoms within the peninsula was rendered possible by the mountainous character of some parts, and the subdivision of the country by sierras, or chains of low rocky hills. The kingdom of Granada, where the Moors held out until the close of the Gothic period, is surrounded by mountains which inclose a fertile plain, the pick of the whole country.

**ii. Geological.**—Stone was the material generally employed, but granite and some of the semi-marbles, which the country throughout possesses, were used in places. Rubble-work, with brick bonding courses and quoins, were used under Moorish influence with much taste and success. Ex.: Toledo, the towers and gates of the city.

**iii. Climate.**—This varies with the structure of the country, which is that of a series of table-lands of varying elevations, divided by sierras. Burgos, in the north, 3,000 feet above the sea, is cold, and exposed to keen winds even in the summer, while in the south of Spain the climate is African.

**iv. Religion.**—Constant warfare with the Moors gave a certain unity to Spain; the struggle was a war of religions as well as of

races. Allegiance to the Papacy has been a characteristic of Spain. Santiago was a pilgrimage centre of more than national importance. In ritual the arrangement of the choirs is to be noted, as well as the size and importance of the chapels attached to the cathedrals.

**v. Social and Political.**—In the Spanish peninsula, the Christian states of Castile, Leon, Navarre, Aragon, and Portugal were all growing up and gradually driving the Mahometans into the southern part called Andalusia. After many reverses and successes, as the capture of Toledo (1062), the battle of Tolosa (1212), gained by the Christians, was the turning point, after which the Mahometan influence in Spain gradually decayed. It was during the reign of St. Ferdinand (1217–1252), who united Castile and Leon, and won back Seville and Cordova, that Gothic art took root, sown by the spirit of conquest and aided by the wealth of the conquered Moors. James, called the Conqueror (1213–1276), King of Aragon, pressed into the east of Spain until the kingdom of Granada was the only portion left to the Mahometans.

**vi. Historical.**—The study of the history of a country, always necessary in order to properly understand the development of its architecture, is doubly required in the case of Spain, which has been occupied at different times by peoples of various races. After the Romans left Spain the Vandals and Visigoths took possession; then the country was invaded by the Moors from North Africa, in the seventh century A.D., and for 800 years their influence was continuous. The evidence of this is to be seen in the southern part of the peninsula (the stronghold of their power), where the curious construction, the richness of the architecture, and the exuberance of intricate, and lace-like, detail are everywhere apparent. This influence occasionally reached far into the north, owing to the superior education and ability of Moorish workmen. We find Moorish and semi-Moorish work in northern towns because the Spanish conquests were gradual; thus Toledo was captured by the Christians in 1085, and the final expulsion of the Moors did not take place till 1492.

## 2. ARCHITECTURAL CHARACTER.

In the south, as already mentioned, there was always more or less of Moorish influence, and from Toledo, the Moorish capital, this influence made itself felt in Saracenic features, such as the horseshoe arch, and, in later times, the pierced stonework tracery of Moorish design. These fretwork screens occupy the whole



146. BURGOS CATHEDRAL.
View from N.W.





147. Burgos Cathedral.
View of Choir.

window, and are rich in detail. Elsewhere we find buildings, under Moorish influence, covered with intricate geometrical and flowing patterns and rich surface decorations, for which the Saracenic art is everywhere remarkable. Ex.: Jews' synagogue, etc., at Toledo.

The curious early churches of the Spanish conquerors seem to have been executed by the aid of Moorish workmen.

The Gothic style is best in Catalonia, where, though on French lines, as in most parts of Spain, it has a special character, owing to the grand scale of the single-span vaulted interiors. Leon Cathedral in the north goes beyond its French original, in the expanse of window opening and the tenuity of support. The exteriors generally are flat in appearance, owing to the space between buttresses being utilized internally for chapels. Speaking generally, it may be said that a liking for excessive ornamentation without any regard to its constructive character is apparent. Contrary to Northern Gothic, broad wall surfaces and horizontal lines are a special feature of the style.

In the later period, the grafting of classical details on to Gothic forms produced some of the most picturesque features imaginable.

## 3. EXAMPLES.

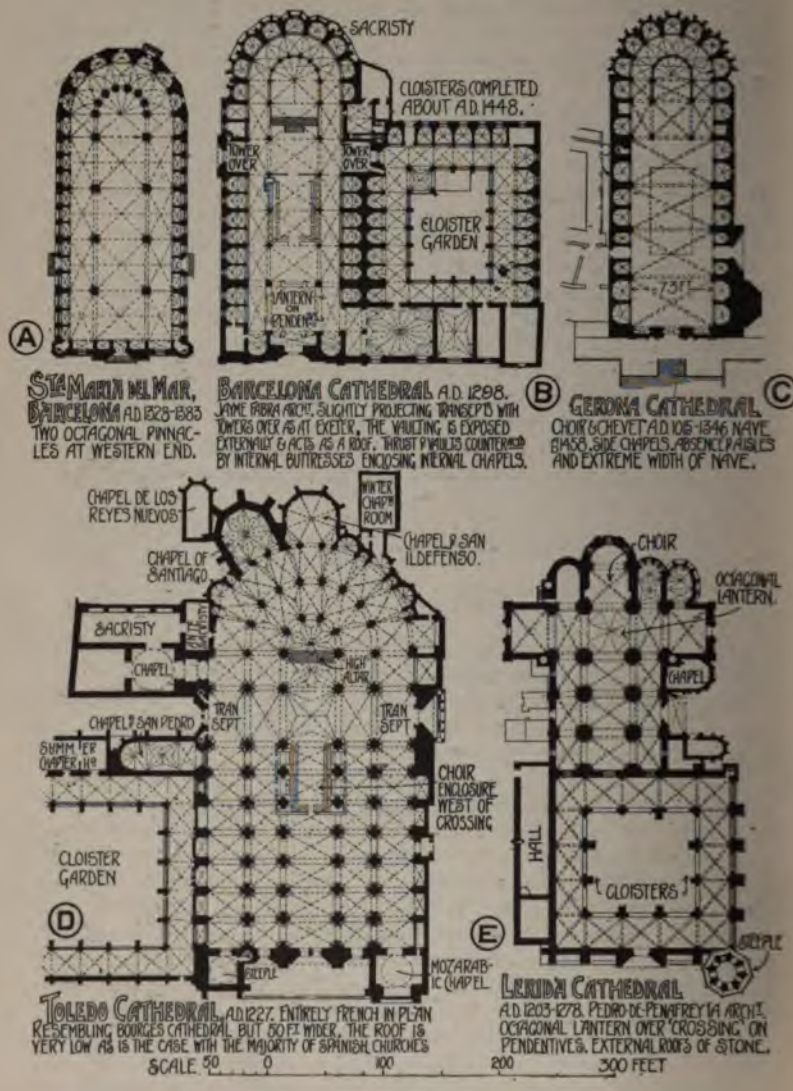
### CATHEDRALS.

During the Romanesque period the influence of Southern French Romanesque models of Aquitaine and Anjou is seen in the Church of **S. Isidoro at Leon**, and old **Salamanca Cathedral** (A.D. 1120–1178), where a dome is placed over the crossing of nave and transepts.

*St. Iago* (A.D. 1078) *at Compostella*, on the other hand, is an example of a Northern Romanesque building with nave and transepts and a complete *chevêt*. In this church the nave is covered with a barrel vault and the side aisles with a cross vault.

**Burgos Cathedral** (A.D. 1230) is irregular in plan (No. 151 L). The view (No. 146) shows the two towers of the western façade, with their open-work spires, recalling Cologne. The richly-treated lantern in the background was completed in 1567. Such features are known as the "cimborio," and the peculiar Spanish treatment of the interior is shown in No. 147. The "coro" or choir is in the usual western position. Note that the nave is reduced to a mere vestibule, also the extraordinary size and importance of the side chapels, as for example, the chapel of the Connestabile, A.D. 1487, an octagon over 50 feet in diameter,

# Spanish Gothic Examples.




**Ste Maria del Mar, Barcelona** A.D. 1328-1383. Two octagonal pinnacles at western end.

**Barcelona Cathedral** A.D. 1298. Jaime Fabra Archt. Slightly projecting transepts with towers over as at Exeter, the vaulting is exposed externally & acts as a roof. Thrust of vaults counteracted by internal buttresses enclosing internal chapels.

**Gerona Cathedral.** Choir & chevet A.D. 1015-1346. Nave, aisles, side chapels, absence of aisles and extreme width of nave.

**Toledo Cathedral.** A.D. 1227. Entirely French in plan resembling Bourges Cathedral, but 50 ft. wider. The roof is very low as is the case with the majority of Spanish churches.

**Lerida Cathedral** A.D. 1203-1278. Pedro de Penafreyta Archt. Octagonal lantern over crossing on pendentives. External roofs of stone.



149. San Juan de los Reyes, Toledo,
Interior, showing Octagonal Dome.

specially remarkable for the beauty and richness of its late detail. The character of interior is shown in No. 147.

**Toledo Cathedral** (A.D. 1227) is a five-aisled church and resembles Bourges (see page 259) in general idea (No. 148 D). It is about the same length, but nearly 50 feet wider, and has the choir inclosure west of the crossing, with a singularly shallow apsidal sanctuary. Here is placed an immense *retablo* or reredos of wood, this being flanked by tiers of arcaded statuary upon the sanctuary piers.

**S. Gregorio at Valladolid** (No. 150) shows the lace-like character of detail derived from Moorish influence.

**Barcelona Cathedral** (A.D. 1298) is remarkable in that the thrust of the vaults is taken by buttresses (No. 148 B), which are internal features, as at Alby in the south of France, the space between being used as chapels. This was developed at **Gerona** (No. 148 C), where the aisles have disappeared, and the interior consists of one vaulted hall, 73 feet in width, in four compartments. The Central Hall of the Law Courts will give an idea of this interior.

**The Church of S. Maria del Mar** (A.D. 1328–1383), in the poor quarter of Barcelona, is a splendid example of a town church (No. 148 A). The vaults rest upon octagonal piers of granite about 4 feet diameter, the spacing being wide, and the aisles and nave of great height. There is no triforium, and only small clerestory windows in the spandrels of the vaults. Severe simplicity is the characteristic of the church; both inside and out there are no features but a few well-studied mouldings.

**Seville Cathedral** (1401-1520), erected on the site of a mosque of the same size, is the largest mediæval cathedral erected anywhere. It bears a considerable resemblance to Milan Cathedral, but is less fanciful in detail, or, as some would prefer to say, of a purer Gothic style. The vaulting is rich, loaded with bosses in places, but confused and weak in its lines. Externally there is a certain shapelessness and absence of sky-line. *Note.*—The *parroquia* or parish church is separate, but included within the cathedral area.

The peculiarity of plan was no doubt caused by the structure being made to fill up the space occupied previously by a mosque. It is typically Spanish in having a rectangular outline; it differs from most of the great Continental churches in having a square east end, and not an apse. Compared with Westminster Abbey (the highest stone-vaulted building in England) we find that the nave of the Abbey is the same height and width (practically) as one of the four side aisles of Seville, while the bays of the nave arcade at Westminster are but half the span. The length of the

Abbey is slightly under that of Seville. Thus one aisle of Seville represents the size of the nave and choir of the abbey, which is repeated four times at Seville; in addition to which there is the great nave, 55 feet wide from centre to centre of pier, and 130 feet high. Surrounding the church, and of the same depth as the aisles, are the ring of chapels. From these comparisons we may obtain an idea of the immense size of this Spanish cathedral.

**St. Juan de los Reyes, Toledo,** A.D. 1476 (No. 149), is a rich example of a sepulchral chapel, erected by Ferdinand and Isabella, comparing in its intended purpose with Henry VII.'s Chapel at Westminster. Other examples of early date are ***Valencia*** (A.D. 1262), *Leon* (A.D. 1260), and *Barcelona* (A.D. 1298), all showing French influence, and *Lerida* (No. 148 E), externally roofed with stone. In domestic work the best examples are to be found in Catalonia, as seen in *Barcelona* municipal buildings, and ***Valencia*** town hall.

## 4. COMPARATIVE.

A. **Plans.**—In regard to the plan of the cathedrals, we remark that the great width and comparative shortness (No. 148) of many of the naves is a prominent characteristic. The position of the choir is generally to the west of the crossing of nave and transepts, as at Burgos (No. 151); an arrangement probably derived from the Early Christian basilicas, as at St. Clemente, Rome (No. 46 B), and as at Westminster Abbey and Norwich. Chapels are numerous and large. The *parroquia*, or parish church, is often included in the area of the cathedral, as at Seville.

The *cimborio*, or dome (Nos. 147 and 149), at the crossing of the nave and transepts, is similar in treatment to examples in the south of France. Compare S. Sernin, Toulouse, and Burgos Cathedral (see under Columns) in plan, and Valencia and St. Ouen at Rouen, in design. Internally these octagon vaults are characteristic; they seem inspired by Moorish work. They are intricate in design and ingenious in construction.

B. **Walls.**—In design French models are favoured. The later work is characterized by extreme, and even wild, ornamentation. There is much flatness and absence of sky-line in the exteriors. Burgos has in place of gables effective horizontal terminations by arcades, on the lines of the façade of Nôtre Dame at Paris. Traceried spires, as in Germany, are favoured; those at Burgos are worthy of attention (No. 146).

C. **Openings** were carried to excess in Leon Cathedral, which has not only a glazed triforium, but also as much as possible of



150. San Gregorio, Valladolid.

the wall surface of the clerestory glazed as well. Even in the south, as at Seville, openings are of a large size, stained glass being much used.

D. **Roofs.**—Vaulting is used freely, but developed in decoration, rather than in construction. The tracery, bosses, ribs, etc., employed, produce a rich effect; but the lines are not always good, and nothing to compare in interest with English vaulting was accomplished.

In the south, wide interiors, in one span, were successfully vaulted in a simple style; that at Gerona (No. 148 C) is no less than 73 feet span, and compares with the hall at the Law Courts, London. The boldest and most original vaults are the great flat spans, that form galleries across the western ends of the churches, extending through nave and aisles in three spans. Their rich soffites attract attention on entering, and their curves frame the view of, and give scale to, the interior of the church beyond.

E. **Columns.**—The favourite feature of a lantern at the crossing gives importance to the central piers. At Burgos (No. 147) they are circular in plan (rebuilt 1567), and contrast with the great octagon at S. Sernin, Toulouse.

In Seville Cathedral great column-like piers are employed for all the arcades, similar in effect to those of Milan, but without the tabernacle capitals. Carved capitals are indicated in No. 151 E, J.

F. **Mouldings.**—Refinement is not the usual characteristic of Spanish work. Original and arbitrary forms will be found, mingled with features borrowed from French work. In Catalonia the best and most artistic work, in a restrained manner, was produced; in S. Maria del Mar, Barcelona (see *ante*, page 299), every moulding has its purpose and expression; but this is far from being the character of other more numerous examples in Spain.

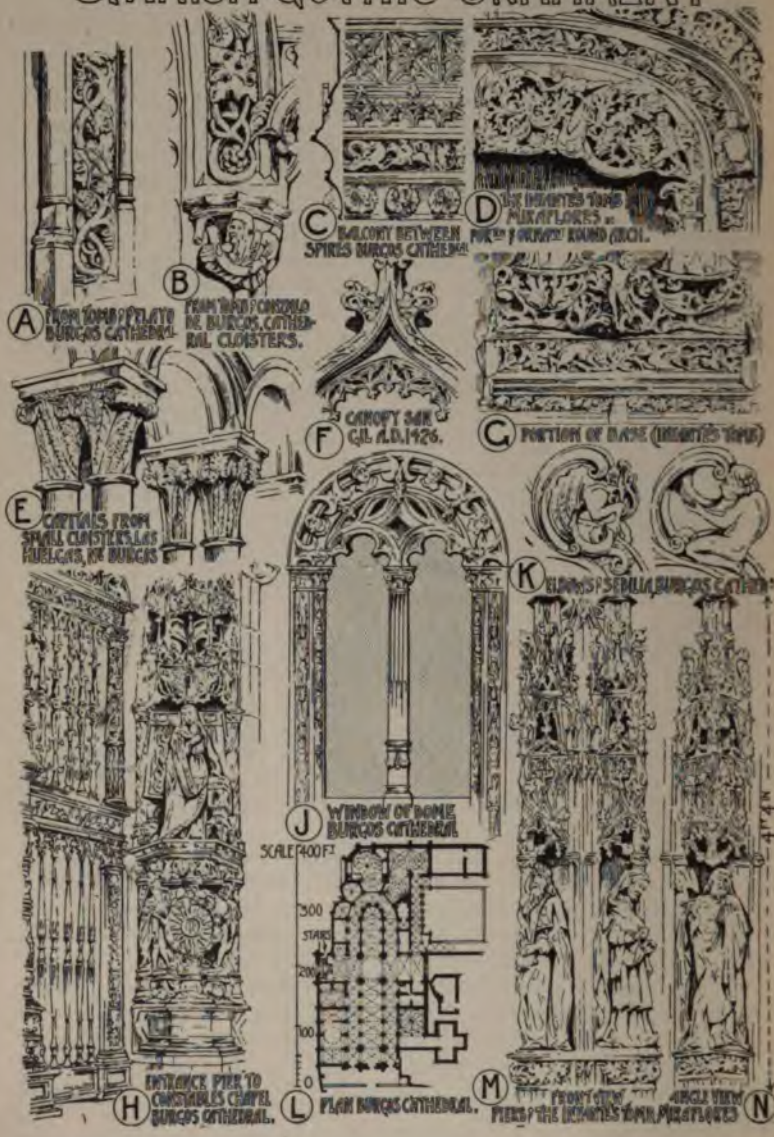
G. **Ornament** (No. 151).—The most decorative feature in Spanish churches is the vast *retablo* or reredos, which is often as wide as the nave, and reaches up to the vaulting. They are constructed of wood, stone, or alabaster, and are crowded with niches, figures, canopies and panelling (No. 151 C, F, K).

Those at Toledo and Seville are probably the richest specimens of mediæval woodwork in existence. These resemble the great English altar screens, notably that at Christchurch, Hampshire.

Painting and gilding are used to heighten the effect, the former naturalistic, and the latter sometimes solid, so that the effect of metal is obtained.

*Sculpture* in stone or marble is often life-size, naturalistic, and expressive, and however deficient in other qualities, it combines

# SPANISH GOTHIC ORNAMENT



in producing the notoriously impressive, if sensational, interiors of Spanish churches (No. 151 H, M, N).

*Stained glass* is used, as at Seville, Oviedo, etc. Usually it is Flemish in style, is heavy in outline, and strong to gaudiness in colouring. *Rejas*, or rich and lofty grilles (Nos. 147 and 151 H), in hammered and chiselled iron, must also be mentioned as characteristic. The formality of the long and vertical bars is relieved by figures beaten in *repoussé*, in duplicates, attached back to back, and by crestings and traceries adapted to the material, and freely employed. Few things in Spain are more original and artistic than these *Rejas*.

Magnificent stalls, each provided with a separate canopy and crowned with a tall spire, occur; the Cathedral of Barcelona has some resembling those at Chester.

Bishops' thrones, pulpits, lecterns and choir desks are also elaborately treated.

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# RENAISSANCE ARCHITECTURE IN EUROPE.

"New structures, that inordinately glow,
Subdued, brought back to harmony, made ripe
By many a relic of the archetype
Extant for wonder; every upstart church,
That hoped to leave old temples in the lurch,
Corrected by the theatre forlorn
That as a mundane shell, its world late born,
Lay, and o'ershadowed it."—BROWNING.

## GENERAL INTRODUCTION.

THE causes which led to the re-introduction, or re-birth (Renaissance), of Classic Architecture in Europe at the beginning of the fifteenth century, are instructive, and must be grasped in order fully to understand so great a change.

In this section we shall treat of the Renaissance movement as affecting the whole of Europe.

## 1. INFLUENCES.

1. **Geographical.**—The Renaissance movement, arising in Italy in the fifteenth century, spread from thence to France, Germany, and England, and over the whole of Western Europe—over what had been, in fact, the Roman empire in the West. The Eastern empire did not come under its influence; in fact, the Greeks in the East, who had been the most civilized people in Europe, were now falling before the Turks.

ii. **Geological.**
iii. **Climate.** } The reader is referred to each country.

iv. **Religion.**—The invention of printing, which aided the spread of knowledge, the spirit of inquiry, and the diffusion of freedom of thought, led, among the Teutonic races, to a desire to

break away from Romish influence. This desire was originally fostered in England by Wycliffe (A.D. 1377), and by Martin Luther in Germany (A.D. 1517), in which countries Reformation in religion proceeded side by side with Renaissance in architecture This renewed vigour in thought and literature was accompanied by a fresh building era in northern Europe. In England, civil and domestic architecture received a special impulse from the diffusion among laymen of the wealth and lands of the monasteries dissolved by Henry VIII.

In Italy, on the other hand, where the Reformation took no hold, and where comparatively few churches had been built in the Gothic manner during the Middle Ages, a revival of ecclesiastical architecture took place, and in every important town we find Renaissance churches, carried out on a grand scale and in a most complete manner. The Jesuits who headed the counter-reformation carried the style into all parts, giving to it a special character of their own.

**v. Social and Political.**—A new intellectual movement manifests itself sooner in literature than in architecture, and thus the former influences the public taste. Dante (1265–1321), Petrarch (1304–1374), and Boccaccio (1313–1375) aided in the spread of the newly-discovered classic literature, which caused a revolt against mediæval art. The subsequent fall of Constantinople in A.D. 1453 caused an influx of Greek scholars into Italy, whose learning was an important influence in an age which was ripe for a great intellectual change. Thus a revival of classical literature produced a desire for the revival of Roman architecture.

Again, among the MSS. of Greek and Latin authors brought to light about this time, was Vitruvius' book of Architecture, written in B.C. 50, which was translated into Italian in A.D. 1521.

Erasmus (1467–1536), one of the few Greek scholars of the period, worked hard to direct the public attention to the original text of the New Testament, and to the Greek classics, as a set-off to the writings of the schoolmen, whose authority had for so long borne an exclusive sway.

Italian architecture was naturally the first to be affected, because the Gothic style had never taken a firm hold on the Italians, who had at hand the ancient Roman remains, such as the Pantheon, the Basilica of Maxentius, the Colosseum, the remains of the great baths, and the Roman fora. In Italy, therefore, where feudalism had never fully established itself, and where the municipalities had developed a spirit of municipal enterprise, practically a direct return was made to Roman forms. (Refer to each section of Renaissance architecture.)

**vi. Historical.**—We shall find that this section is exceedingly interesting. At the beginning of the sixteenth century there was a general grouping together of the smaller states into independent kingdoms, under powerful rulers, who governed with authority, and kept large standing armies. We find also that three great inventions came into being—gunpowder, which changed the whole method of warfare; th ner's compass, which led to discovery of the West I nd South America, and the dation states; and, lastly, printing, fav n's minds which caused the nation vival of learning. Copper-engraving w third quarter of the fifteenth ury.

lileo (1564–1642) prove he earth was not the centre e visible universe, but minute planet in the solar m.

## 2. ARCHITECTURAL CHARACTER.

The Renaissance of the fifteenth century in Italy, and of the sixteenth century in other parts of Western Europe, was a break in that orderly evolution of architecture which is based on the nature and necessities of materials.

In place of such evolution we have the worship of style, that is, of the past results of the nature of materials as formulated into systems. Such results were worshipped for their own sake, and often to a great extent applied regardless of the materials of their execution.

The main features in the style are the revival of the classic orders (Nos. 23, 220), viz., the Doric, Ionic, and Corinthian columns or pilasters, with their entablature, which are often used decoratively, as the Romans used them, and at other times are constructive value Buildings designed for modern wants are clothed in the classic dress of ancient Rome. It must not be supposed, however, that in this development no advance was made. It is true that classic precedent was the basis, but column and pilaster—either plain, fluted or panelled—with entablature and details, were applied in many novel and pleasing forms. System in their application was gradually evolved, and a style built up which has become the vernacular of all modern states.

Italy, the headquarters of the new movement, in the fifteenth century possessed skilful jewellers and excellent medallists, and it was by their help that the Renaissance commenced and expanded. From their well-known good taste, architects consulted them, and often, indeed, were their pupils, as Ghiberti,

Donatello, and Brunelleschi. Men, therefore, who were at once painters, sculptors, architects, silversmiths, jewellers, and goldsmiths, only looked, somewhat naturally, at the finished results as the goal to be aimed at, and were not troubled about the means to such an end. The development of the schools of painting also had their influence on architecture, and aided the tendency which caused structures to be looked upon as works of art, instead of being dependent mainly for their form and effect on structural necessities. For the same reasons, the period may be looked on as the age of accessories, in which iron work, gold and silver work, tombs, monuments, altars, fonts, and fountains, were designed in great numbers, and, by the whim and fancifulness of the designer, gave a special character to the period.

Architecture ceased to a certain extent to be subject to the considerations of use, becoming largely independent of constructive exigencies, and to a greater extent an art of free expression in which beauty of design was sought for.

Speaking generally, there was an endeavour to reconcile the Gothic and the Roman method of construction, *i.e.*, the body and the dress were one and the same thing constructively, because the architects of the period, attracted by the mere external appearance of ancient Roman art, but perceiving that this form was merely an envelope, continued in the matter of construction to a large extent to follow the traditions of the Middle Ages, which did not separate the structure from the decoration.

Owing, therefore, to ignorance of Roman methods, the Roman manner of forming the main walling of concrete and casing it with marble, stone, or brick was not followed.

In the Gothic period each stone was finished, moulded, and sculptured in the workshops before being laid– a method which produced skilful and intelligent masons and stone dressers, and obliged the sculptor to make the decoration suit each piece of stone. In the Renaissance period the new mouldings and carvings could be executed with more exactitude and less expense *in situ*, thenceforward the necessity of making the jointing accord with the various members of the architecture was no longer imperiously felt, and this negligence often resulted in a want of harmony between the jointing and the architectural features.

A building was, it will be observed, regarded rather as a picture with pleasing combinations of lines and masses than as a structure of utility, being often designed by men trained as painters, sculptors, or goldsmiths. Such structures often have a princely dignity, as in many of the Roman palaces (No. 158), where the column, pilaster, frieze, and cornice are employed as elements of composition with special regard for the artistic result and with

considerable originality. The wide and narrow spacing of the pilasters in the Palazza Giraud is a novel form (No. 156).

It would be a great mistake, therefore, to state that Renaissance architecture was solely imitative. New and delightful combinations of features were introduced, and architecture became to a great extent a personal art due to the fancy of the individual architect, many of whom founded schools of design, in which their principles were followed by their pupils and followers.

In the decorative detail, also, an advance may be noted. In metal work the bronze baptistery gates at Florence were won in competition by the sculptor Ghiberti, in 1404, and are the finest examples of a class of work for which these craftsmen-architects were famous. These accessories of architecture were erected, or added to many old buildings, both in Italy and elsewhere.

The Renaissance architects followed the Byzantine treatment of the Dome, but increased it in importance by lifting it boldly from its substructure and placing it on a "drum," in which are placed the windows, thus making it a great external dominating feature (Nos. 163, 173, 213).

Likewise, they were the first to introduce as an architectural "*motif*" the wall of massive rusticated masonry with arched openings, as in the Palazzo Riccardi, etc. (Nos. 152 and 153).

In these buildings the wall is frankly treated as architecture against mere building, and is in no way imitative.

**Renaissance Vaulting.**—In the beginning of the fifteenth century the Gothic principles of ribbed vaulting were abandoned, giving place to the revival of the classic method of solid semicircular vaulting (see page 80). This type of vaulting was much used in the halls, passages, and staircases to Renaissance palaces and churches, and was besides frequently built of wooden framing, plastered and painted with coloured decoration. It was often of remarkable richness and beauty, as at the Vatican palace by Raphael. In cases of cross-vaulting with narrow and wide spans, it appears that the groins were now formed by means of "*ordinates*" (No. 83 E), with elliptical soffites, groins forming a straight line on plan instead of the wavy line formed by the intersection of a semicircular vault with one stilted above its springing.

*Note.*—Having now taken a rapid survey of the causes which led to the revival of classical architecture throughout Europe, and before proceeding especially to consider the development in each country, we may compare a few of the more prominent characteristics of the style with the treatment which obtained in Gothic architecture.

### 3. EXAMPLES (see under each country).

Although important types of church design were evolved, yet in the main the most characteristic monuments were the municipal buildings, palaces, country houses and elaborate façades to town buildings. In addition, chapels, tombs, gates, oratories and public fountains were special creations.

### 4. COMPARATIVE.

| RENAISSANCE. | GOTHIC. |
|---|---|
| A. **Plans.**—Symmetry and proportion of part to part carefully studied (Nos. 159, 164, 174, 184, 211, etc.). | A. **Plans.**—Picturesqueness and beauty of individual features more particularly sought after (Nos. 89, 116, 120 and 148). |
| Grandeur gained by simplicity (Nos. 161, 162 and 213). Fewness of parts has a tendency to make the building appear less in size than it really is. | Grandeur gained by multiplicity (Nos, 123, 136 and 150). In consequence of the large number of parts, the building has a tendency to appear larger than it really is. |
| Towers are sparingly used, and when they occur are symmetrically placed. In England those by Sir Christopher Wren, at St. Paul's (No. 213), and Bow Church, Cheapside (No. 214), are exceedingly fine. The dome is a predominant feature in the style (Nos. 142, 166, 172, 184 and 213). | Towers are a general feature, and are often crowned with a spire (Nos. 82, 86, 87, 88, 90 and 115). Small towers, turrets, and finials help to emphasize the vertical tendency (Nos. 94, 97 and 134). The tower and spire are predominant features. |
| Interiors of churches are planned on Roman principles (Nos. 154, 160 and 164), and covered with flattish domes and pendentives. | Interiors are more irregular, and are covered with stone vaulting (Nos. 84, 89, 116 and 120), or open-timbered roofs (No. 85). |
| The parts are few, the nave being divided probably into three or four compartments (No. 212). In consequence of this, a general effect of grandeur is produced. | The parts are many, a nave of the same length as a Renaissance church probably divided into twice as many compartments. Compare St. Paul's, London, with Cologne Cathedral (No. 174). |
| B. **Walls** are constructed in ashlar masonry of smooth-faced walling, which, in the lower storeys, is occasionally heavily rusticated (No. 153). Materials are large, and carry out the classic idea of fewness of parts. | B. **Walls** are often constructed of uncoursed rubble or small stones (No. 105), not built in horizontal layers, also of brick and rough flint work. Materials are small in size, and carry out the Gothic idea of multiplicity. Stone-work |

| RENAISSANCE. | GOTHIC. |
| --- | --- |
| Stucco or plaster are often used as a facing material where stone is unobtainable. The idea of the use of the material according to its nature is lost, the design, as such, being paramount. Visible joints are considered a defect. | is worked according to the nature of the material to a new and significant extent. It is not too much to say that, as in a mosaic, each piece in a wall has its value in this style. |
| Angles of buildings often rusticated, as in Florence, *i.e.*, built in blocks of unsmoothed stone, or carefully indented with patterns (No. 158). | Angles of buildings often of ashlar masonry or smooth-faced stone, the rest of the walling being of rough materials, as rubble or flint. |
| Gable ends of churches and buildings generally are formed as pediments, with a low pitch (Nos. 154 and 172 K) or of semicircular form (No. 172 A.) | Gable ends are steep, occupied by windows, and crowned either with sloping parapet or ornamented timber barge boards (Nos. 94, 107, 101 J and 207). |
| Simplicity of treatment and breadth of mass are prominent characteristics (Nos. 153, 158 and 161). | Boldness and richness of sky-line and intricacy of mass are prominent characteristics (Nos. 86, 87, 88, 90, 94, 122, 123, 125 and 134). |
| C. **Openings.**—Door and window openings are semicircular (Nos. 167 D and 175 C), or square-headed (Nos. 155 E, 167 A and 175 D). *Note.*—The influence of climate is important. In Italy, which has a bright climate, the windows are small. In northern Europe, with a dull climate, in the earlier period windows are large, and often have stone mullions or solid uprights dividing the window space vertically (No. 206). Openings generally come over one another, and are symmetrically disposed with reference to façade. | C. **Openings.**—Door and window openings usually pointed (Nos. 109, 110, 117 and 122), and of considerable size, and divided by mullions, though not necessarily so. This treatment is for the introduction of painted glass. The use or non-use of this means of decoration influences the size and number of the openings. Often little attention is paid to the axes, *i.e.*, the placing of openings over one another. Windows and doors were placed where wanted, without much regard to symmetry of composition. |
| The classic system of moulded architrave (No. 66 K) projecting from the wall face is revived. Doorways and other openings are surrounded by such architraves, often richly carved. | Openings formed in receding planes (Nos. 66 F J and 109), with mouldings of great richness, are often provided with small circular shafts and carved capitals. |
| D. **Roofs.**—Vaults are of simple Roman form without ribs. | D. **Roofs.**—Vaulting is developed by means of the pointed arch, |

| RENAISSANCE. | GOTHIC. |
|---|---|
| Domes have usually an internal plaster soffit or ceiling, and are painted in coloured fresco, upon which they depend for their beauty. The dome over a large space is generally constructed with an inner and outer covering, as St. Paul's, London (No. 212). Open-timbered roofs occur, as in the Jacobean halls, but the tendency is gradually to plaster them up (Nos. 203 and 204). All roofs but domes are neglected and hidden as far as may be in Italy, but are made much of in France and Germany. | and depends for effect on the richness of the carved bosses, on the setting out of the ribs, on which the web of the vaulting rests, and on the grace and beauty of these curves (Nos. 81 and 84). Open-timbered roofs are a beautiful feature of the style, the most perfect specimen in England being Westminster Hall (No. 85 H). Externally roofing is an important element in the design, and in conjunction with chimneys, must be reckoned as a means of effect. |
| E. **Columns.** — The classic columns and orders, revived and used decoratively in façades, as in the Roman manner (Nos. 156, 157, 158, 161, 166, 180 and 208), and structurally for porticoes, etc., (Nos. 154 A K, 159 G H and 213). The shafts were often rusticated, fluted spirally, or wreathed with bands of foliage and fruit.<br>"I, from no building, gay or solemn, Can spare the shapely Grecian column." | E. **Columns,** where used, are entirely constructional, or expressive of pressures upon the piers to which, sometimes, they are attached (Nos. 92, 119, 121 and 138). The relative proportion of height to diameter does not exist, and the capitals and bases are either heavily moulded or carved with conventional foliage. |
| F. **Mouldings.**—The principal cornice plays an important part in the style, and in the Florentine palaces is bold and impressive (Nos. 152, 153 and 159). Cornices often, however, mark each storey (Nos. 168, 170, 171 and 176). | F. **Mouldings.**—The parapet, often battlemented, or pierced with open tracery (Nos. 97, 98, 102 and 111), takes the place of a cornice, and is less strongly marked than the boldly projecting classical cornice. |
| The contours of mouldings follow on classic lines, as may be seen in the architrave (Nos. 155, 167, 175 and 179), but many new combinations of mouldings were designed. | The contours and mouldings are portions of circles joined by fillets, inclosed in rectangular recesses (No. 112), or in later times based on a diagonal splay (No. 112). |
| Cornices and other features of classic origin (Nos. 152, 153, 158, 159, 168, 170, 171 and 173) occur in every building, and are | Tablets and string courses of carved ornament occur (No. 111), varying in outline and treatment in different centuries. Gothic |

| RENAISSANCE. | GOTHIC. |
|---|---|
| beautifully carved. Refinement is essential. | mouldings depend for effect upon light and shadow. |
| Cornices, balconies, string bands, and horizontal features generally (Nos. 158 and 170) are strongly pronounced, and by their frequency and importance produce an effect of *horizontality*. | Vertical features, such as buttresses casting a deep shadow, numerous pinnacles, turrets (Nos. 114, 115, 123 and 146), high roofs, with towers and spires, produce an effect of *verticality*. |
| G. **Ornament.** — The human figure abandoned as a scale, statuary being often much larger than life-size (Nos. 161, 165, 166 and 213) | G. **Ornament.** — The human figure adhered to as a scale, thus helping in giving relative value to parts (Nos. 117, 122, 125, 126 A, 136 and 138). |
| Stained glass is little used, all of the best efforts at colour being by means of opaque decoration, as fresco or mosaic, which is lavishly applied to interiors. (Ex.: the Sistine Chapel, Rome, by Michael Angelo). | Stained glass is extensively used, is the chief glory of internal decoration, and partly the *raison d'être* of the immense traceried windows, which acted as a frame for its reception (Nos. 93 E, 102, 114 B and 136). |
| "Sgraffito" decoration, *i.e.*, scratched and coloured plaster, is sometimes applied to exteriors, as in the *Palazzo del Consiglio* by Fra Giocondo (see page 344) at Verona. | Colour for exteriors is dependent on the actual material, as in the coloured marbles of central Italy (see No. 142, Florence Cathedral). |
| Great efficiency in the crafts is noticeable in the work of the early Renaissance architects (Nos. 155, 167, 175 and 179), who are often painters and sculptors, *e.g.*, Donatello, Ghiberti, and Della Robbia, and students should see their work in the South Kensington Museum. | Carving is often grotesque and rudely executed (Nos. 126, 135 and 146), but in the best examples possesses a decorative character, in harmony with the architecture. This is effected by the constructive features themselves being enriched. |

## 5. REFERENCE BOOKS (see under each style).

*Note.*—It is now necessary to glance briefly through the chief peculiarities of the Renaissance style or manner in each country, noticing the influence of climate and race, and, where possible, the social and political causes which were at work.

As about this period the names of architects begin to be prominently mentioned in connection with their own designs, we shall find it sometimes convenient to group them into schools for that purpose. In this respect the student will

derive much information from reading "The History of the Lives and Works of the most celebrated Architects," by Quatremère de Quincy, and the biographies of G. Vasari, Milizia, and others, translations of which are published, and will be found in the R.I.B.A. Library. His interest in their works will be much increased by reading of the influences which directed these master-minds, and the various incidents in their lives which tended to influence their work.

The student should study many excellent examples which have been collected in the architectural courts of the Crystal Palace and the South Kensington Museum; it is only by a close study of the details themselves that the style can be thoroughly grasped.



# ITALIAN RENAISSANCE.

"Come, leave your Gothic, worn-out story.

. . . . . .

They love not fancies just betrayed,
And artful tricks of light and shade,
But pure form nakedly displayed,
And all things absolutely made."—CLOUGH.

THE Renaissance of Italy varies considerably in the chief centres of the great revival, namely, **Florence**, **Rome**, and **Venice**. This was due to various social and political causes, which we will endeavour to enumerate shortly.

## THE FLORENTINE SCHOOL.

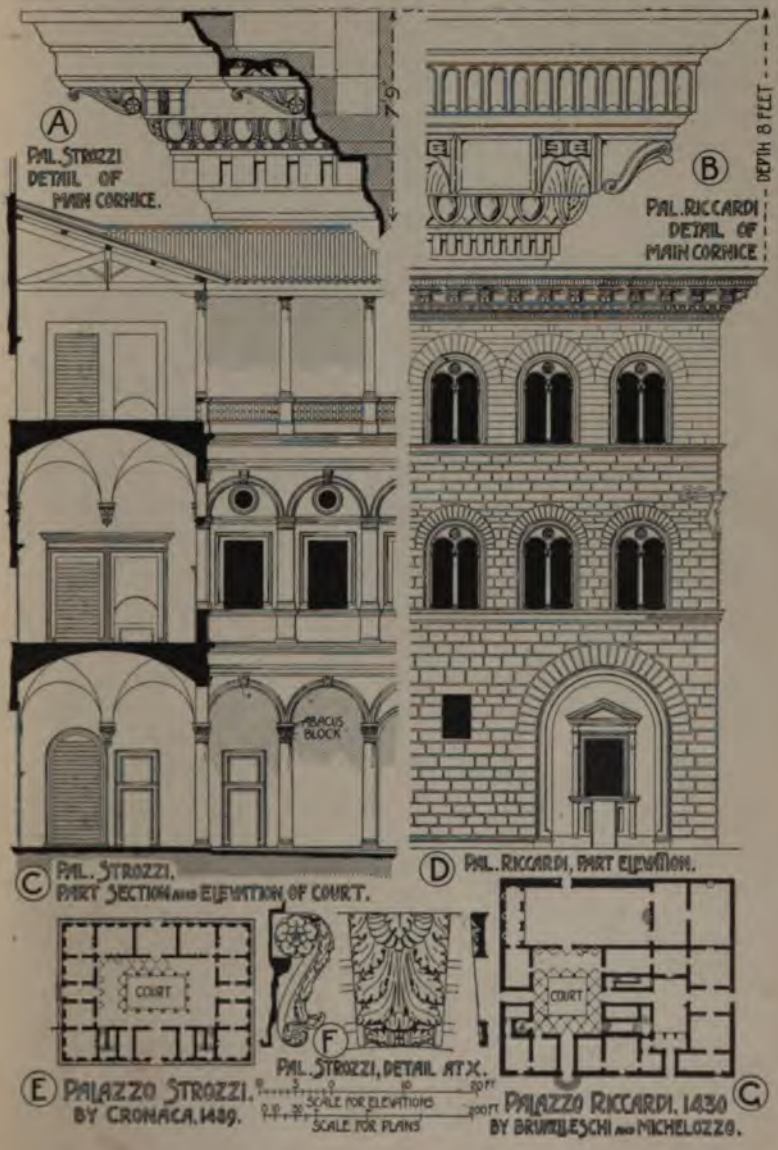
"Florence at peace, and the calm, studious heads
Come out again, the penetrating eyes;
As if a spell broke, all resumed, each art
You boast, more vivid that it slept awhile
'Gainst the glad heaven, o'er the white palace front
The interrupted scaffold climbs anew;
The walls are peopled by the painter's brush,
The statue to its niche ascends to dwell."—BROWNING.

### 1. INFLUENCES.

i. **Geographical.**—It must be remembered that Florence was more than a city, being, in fact, one of the powers of Italy, although its dominions included no large part of Central Italy. The activity and influence of the Florentines caused a Pope to declare that they were the fifth element.

ii. **Geological.**—The quarries of Tuscany supplied large blocks of stone and marble, which, lying near the surface, were easily obtainable for building purposes. The monumental character and massiveness of these materials considerably influence the style of the architecture, as will be at once apparent to every student.

# FLORENTINE RENAISSANCE EXAMPLES I.



**iii. Climate.**—Among other causes which affected the development of the style, we should note that the bright and sunny climate rendered large openings for light unnecessary. The character of the climate is well indicated by Tennyson:

> "In bright vignettes, and each complete
> Of tower or duomo, *sunny-sweet*,
> Or palace how the city glittered
> Through cypress avenues, at our feet."

**iv. Religion.**—At this period Florence produced the great Dominican preacher, Savonarola, whose reforming energy divided the city, and swayed its policy. He looked to the French king to call a general council to reform the Church. In art he tended to the Puritan theory. Although suppressed by the Pope, his influence on the minds of his generation was not lost—the Sistine frescoes witness his power over Michael Angelo.

**v. Social and Political.**—In Italy generally there was a wave of national enthusiasm and patriotic feeling and an endeavour to hark back to the old Roman magnificence and ascendancy. The Medici dynasty, so intimately connected with the rise of Florentine art, was founded by John of Medici, who died 1429. He took the popular side against the nobles, gradually usurping supreme authority over the state. His son Cosimo, who died 1464, employed his wealth liberally in the advancement of art. He founded the Medici Library and Platonic Academy, and was the patron of Brunelleschi, Donatello, Michelozzo, Lippi, Masaccio, and others. Cosimo was succeeded by Pietro and Lorenzo Medici, and Florence, "the Athens of the Renaissance," became the centre of the revival in art and literature.

The artists of the period were often at the same time sculptors, painters, and architects; among these were—Luca della Robbia (1400–1482), famous for his glazed reliefs in terra-cotta; Lorenzo Ghiberti (1378–1455), the sculptor of the bronze gates to the Baptistery; Donatello (1386–1466); Mino da Fiesole (A.D. 1431–1484), and Benedetto da Majano (A.D. 1442–1497), famous for his bas-reliefs and statues at Florence and elsewhere. As showing the commercial prosperity of Florence, it is worthy of note that the golden florin was first coined in that city in 1252, and soon became the general standard of value in Europe.

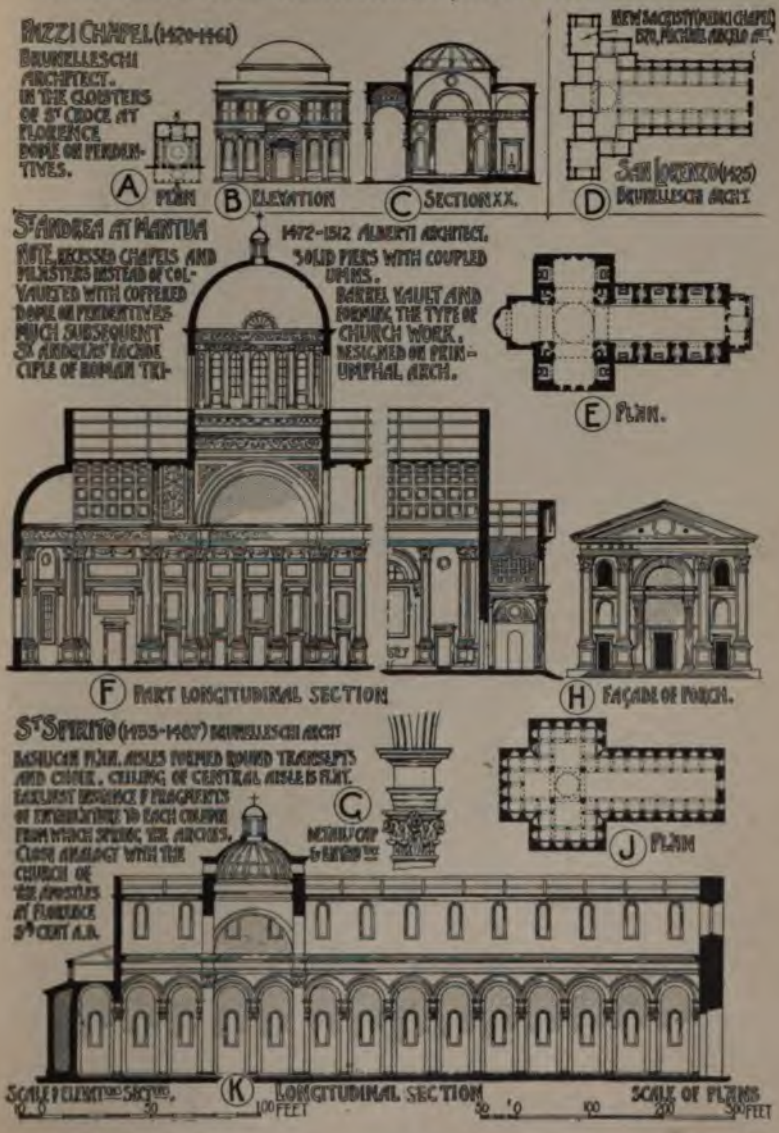
As rival parties in the city were engaged in constant hostilities, safety and defence were primary motives in building. The palaces are in reality semi-fortresses.

**vi. Historical.**—Florence commenced to grow, on the removal of the inhabitants of Fiesole, down to the banks of the Arno in 1125.



153. Palazzo Riccardi, Florence.

# FLORENTINE RENAISSANCE EXAMPLES II.



The grouping together of the independent commonwealths of Italy is a feature of this period, and, as in ancient Greece, one city bore rule over another. Pisa became subject to Florence in 1406. Florence gradually became the chief power, as during the fourteenth century she was the artistic capital, of Italy. During this period the nobles were at constant feuds with each other, being divided into the hostile camps of Guelphs and Ghibellines, the former being generally successful. Dante Alighieri (1265–1321) took part in these conflicts. Eventually the wealthy family of the Medici became the ruling power in the State (see above). In 1494 Charles VIII. of France occupied Florence, during his brief invasion of Italy, arising from his claims on the kingdom of Naples. The short-lived republic of Savonarola (see above) followed, but the Medici, in spite of successive banishments, were finally reinstated by the Emperor Charles V., who took the town in 1530, acting on behalf of the Ghibellines. During a siege of eleven months, Michael Angelo acted as the engineer of the republic. The suppression of political liberty followed, especially under Cosimo I. (1537–1564), who, however, greatly extended the Florentine dominions, Siena being ceded to him in 1557 by the Emperor. His successors, the Grand Dukes of Florence, followed, until in 1737 the House of Medici became extinct. The Duchy then passed into the hands of Austria till 1801, when, as the Republic, and afterwards as the Kingdom of Etruria, it enjoyed political freedom (with the exception of the years 1807–1814, during which time it was incorporated with France). In 1860 it was united to the Kingdom of Italy.

## 2. ARCHITECTURAL CHARACTER.

The massive blocks of rusticated masonry in the lower storeys (No. 153) of the Florentine palaces give to these buildings that character of solidity and ruggedness for which they are remarkable. The palaces are all built round interior courts, possibly derived from the arcaded cloister of the mediæval monastery, the walls resting on columnar arcades (No. 152). The general absence of pilasters, as ornamentation, is specially noticeable in the design of the palaces, which are therefore called "astylar." The sparing use of carved detail, and in fact of features of any kind, gives a marked character of simplicity to the style. The grand effect of these palaces is considerably aided by the massive cornice which crowns the structure, being proportioned to the whole height of the building, as in the Riccardi Palace (No. 152 D).

The columnar arcade is a special feature, as in the Ospedale degli Innocenti and the Loggia S. Paolo. The mural monuments and altars are exceedingly rich with sculpture and decoration.

The types of doors and windows may be divided into three groups:

(*a.*) *The arcade* type, usual in the heavily rusticated examples, which is employed at the Strozzi, Pitti, and Riccardi Palaces, consists of a round arch, in the centre of which is a circular column supporting a simple piece of tracery (Nos. 152 and 155 D).

(*b.*) *The architrave* type is that in which mouldings inclose the window, and consoles on either side support a horizontal or pediment cornice, as in the courtyard of the Pandolfini Palace and in the Palazzo Riccardi (Nos. 153 and 155 E, H).

(*c.*) *The order* type is that in which the opening is framed with a pilaster or column on each side supporting an entablature above; this is the final development, as employed in the Pandolfini Palace, ascribed to Raphael, and also shown in No. 155 F.

## 3. EXAMPLES.

*Note.*—As we have reached the period when the personality of the architect has increased in importance, we will now enumerate very briefly the chief works of Brunelleschi, Alberti, and others, as being the leaders of the Florentine school.

### BRUNELLESCHI (A.D. 1377–1446),

a Florentine by birth, studied the construction of the Pantheon at Rome in order to be able to complete the unfinished dome over the Cathedral of Florence, the carrying out of which he afterwards won in competition. The dome, it is said, was constructed without any "centreing" by means of voussoirs with horizontal joints. He was thus induced to study the features of Roman architecture, which henceforth exerted a considerable influence over his works.

Brunelleschi's chief works are:

The **dome of Florence Cathedral**, A.D. 1420–1461 (Nos. 137 and 142).

**S. Lorenzo** (No. 154 D), A.D. 1425.

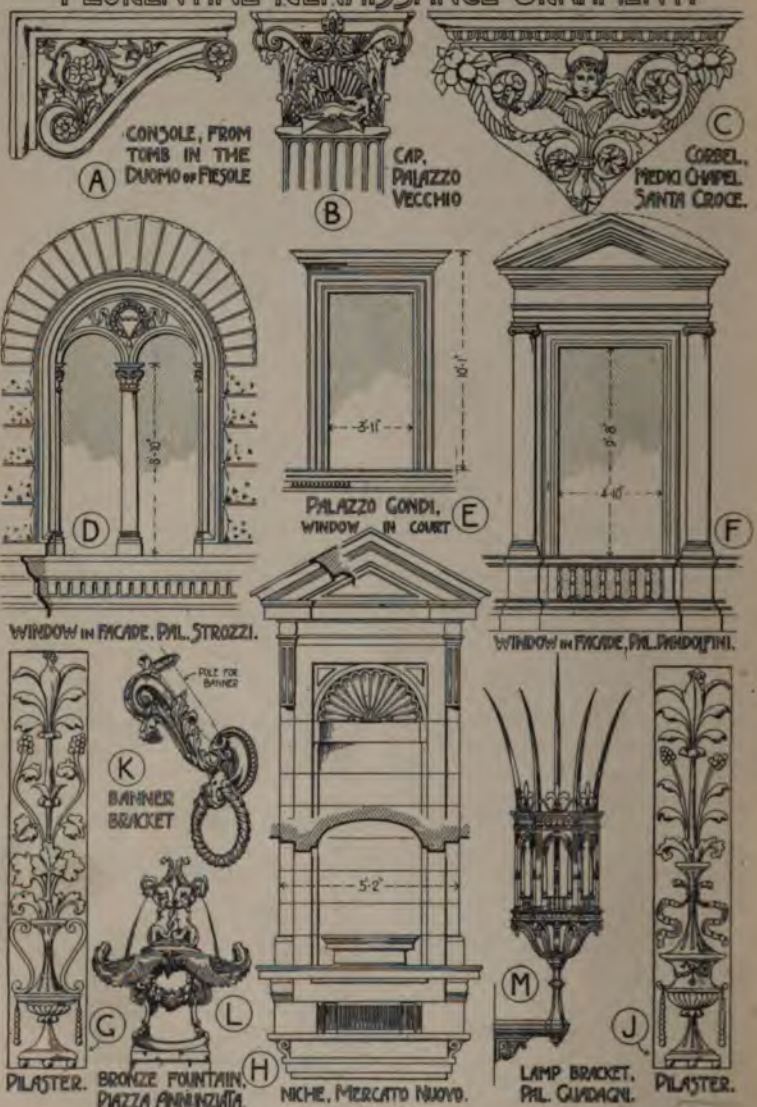
**S. Spirito, Florence** (No. 154).

The **Chapel of the Pazzi** in S. Croce, Florence, A.D. 1420 (No. 154 A, B, C).

The **Pitti Palace**, 1440, by Brunelleschi and Michelozzo.

The **Riccardi Palace**, 1430, by Brunelleschi and Michelozzo (Nos. 152 and 153).

# FLORENTINE RENAISSANCE ORNAMENT.



## ALBERTI (1404–1472)

was a scholar deeply interested in classical literature. His works exhibit more decorative treatment and are less massive than Brunelleschi's (compare the Ruccellai and Pitti Palaces). He wrote a work on architecture, "De Re Ædificatoria," which largely influenced men's minds in favour of the Roman style.

His principal works are:

**Palazzo Ruccellai** (A.D. 1460), generally known as the first Renaissance building in which superposed pilasters were used.

**S. Francesco** at Rimini (A.D. 1447–1455).

Façade of **S. Maria Novella,** Florence, A.D. 1456. Note the early use of consoles over the side aisles.

**S. Andrea** at Mantua, A.D. 1472–1512 (No. 154), is particularly notable and important as the type of many modern Renaissance churches, and consists of a single nave with transepts, all barrel-vaulted above a single order on a pedestal. Chapels, alternated with entrance vestibules, take the place of the customary aisles on each side of the nave. Over the intersection of nave with the transept is a dome, in the drum, or lower portion, of which are windows lighting the interior. The chancel is apsidal, lighted by three windows, which cause the entablature to be mitred round the pilasters of the order, which carry the lunetted half dome of the apse.

The perfection of the porportions makes the interior of this church one of the grandest in the style.

The **Strozzi Palace** (1489) (No. 152), and the **Gaudagni Palace,** both by Cronaca, are important examples.

*Note.*—Characteristic Florentine ornament is shown in No. 155.

## 4. COMPARATIVE (see page 344).

## 5. REFERENCE BOOKS.

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Middleton (G. A. T.) and Carden (R. W.).—"Ornamental Details of the Italian Renaissance." 4to. 1900.

Nicolai (H. G.).—"Das Ornament der Italienischen Kunst des XV. Jahrhunderts." Folio. Dresden, 1882.

Oakeshott (G. J.).—"Detail and Ornament of the Italian Renaissance." Folio. 1888.

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Grandjean de Montigny (A. H. V.) et Famin (A.).—"Architecture Toscane." Folio. Paris, 1874.

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Reinhardt (R.). "Genua." Folio. Berlin, 1886.

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## THE ROMAN SCHOOL.

"See the wild waste of all devouring years!
How Rome her own sad sepulchre appears!
With mouldering arches, broken temples spread."—Pope.

### 1. INFLUENCES.

i. Geographical. The unique character of Rome as an influence was its prestige as the seat of an empire that had crumbled away. The ruins and new buildings are important on account of their more than local influence.

ii. Geological. The remains of old Rome, such as the Colosseum and the Pantheon, formed the quarry from which much of the material for the Renaissance buildings was extracted.

iii. Climate. Refer to previous sections (page 74).

iv. Religion. The return of the popes from Avignon to Rome in A.D. 1370 helped to restore her to her former position of importance and prosperity. From the time of the Council of Constance, 1415, the popes took a more prominent position as Italian princes. During the fifteenth century the popes greatly extended their

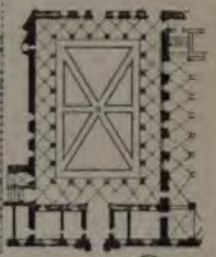


156. Palazzo Giraud, Rome.

# ROMAN RENAISSANCE EXAMPLES I.



CANCELLARIA PALACE, ROME
1495-1505
BRAMANTE
ARCHITECT



A ELEVATION OF CENTRAL PORTION

PLAN B

10 5 0 10 20 30 FEET 50 0 50 100 FEET
SCALE FOR ELEVATIONS SCALE FOR PLANS

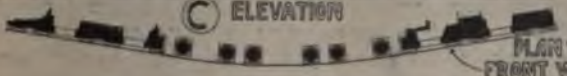


MASSIMI
PALACE, ROME
BALDASSARE
PERUZZI
(1481-1536)
ARCHITECT




C ELEVATION

D PLAN



temporal dominions in Italy. One party hoped that Italian unity would be effected under the papal sway. Cæsar Borgia, nephew to Alexander VI., proposed to effect this by absorbing the Italian states as one would eat an artichoke—leaf by leaf. Julius II. besieged Bologna in person, as sacred and secular capacities were often obscured in the same pope. The Jesuits, founded in the later Renaissance period, existed to counter-work the Reformation, by rendering the papal influence universal. See below.

**v. Social and Political.**—In Rome a central government existed, and in consequence party spirit was checked, thus we do not find the same fortified palaces as at Florence. Rome was the home of the old classic traditions, which naturally exerted great influence in any new development.

During the fifteenth century the popes were temporal princes, and great patrons of art and learning. Splendid new palaces and churches were erected, and the decoration of old ones was carried on. A school of artists and workmen was created who afterwards spread abroad the style of the Renaissance in other parts of Italy and beyond.

**vi. Historical.**—During the absence of the popes at Avignon, the factions of the barons continued unchecked, except during the brief rule of Rienzi's republican state, 1347. The return of the popes took place in 1376 under Gregory XI. The scandal of rival popes at Rome and Avignon was terminated in 1415 by the Council of Constance, after which Rome rapidly gained in wealth and prestige. Julius II., a warlike and ambitious pope, extended the temporal power, and founded the new S. Peter's and the Vatican.

Spanish influence became powerful, and was not always exerted for good. It was replaced by French influence, which was strong under Louis XIV. Then the growth of the power of Austria was felt throughout the Peninsula, until the rise of national feeling which, though checked in 1848, led in 1870 to Rome becoming the capital of New Italy. This remarkable revolution was effected without Rome ceasing to be the headquarters of the papacy.

## 2. ARCHITECTURAL CHARACTER.

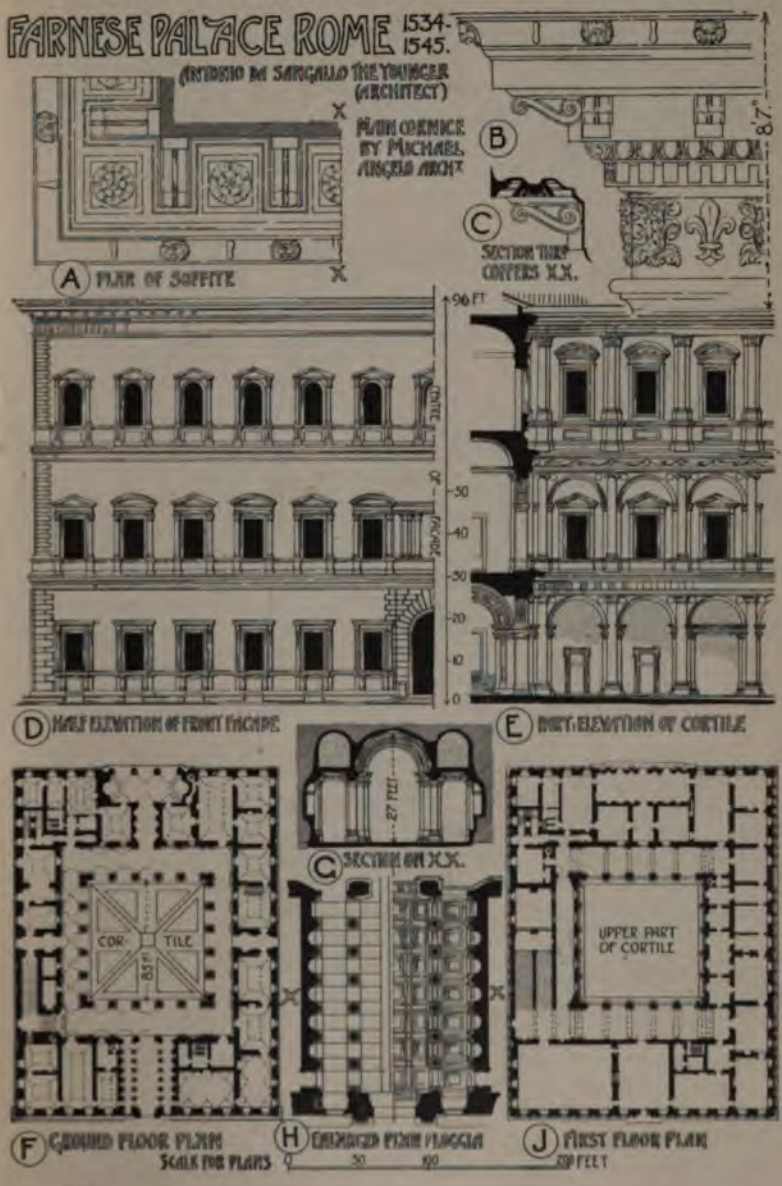
The classic orders were largely used in the façades and courtyards (Nos. 156, 157 and 161), and a general attempt at correctness and conformity to the ideas of ancient Roman architecture prevailed. The size and simplicity of the palaces of Rome produce an effect of dignity (No. 158).

The principle which animated architects in the later school was



158. Farnese Palace, Rome.

# ROMAN RENAISSANCE EXAMPLES II.



**that of unity, which they endeavoured to attain by making a whole building appear to be of a single storey; for this reason, two or more storeys are included under an order of pilasters, which is sometimes crowned by an attic, but never by another superimposed order. Arcuation is only sparingly introduced, except it be in the form of tiers of arcades, in imitation of the Colosseum.**

## 3. EXAMPLES.

***Note.*—It will be most convenient and useful to the student if we consider this school under its successive leaders, beginning with Bramante.**

### BRAMANTE (1444–1514)

was the first Roman architect of note; he was educated as a painter under Andrea Mantegna, and was probably a pupil of Alberti. He was a Florentine by birth, but studied at Rome, first practising in the city of Milan, and in the dominions of its duke. His earlier works, as, for example, the **choir of St. Maria della Grazie at Milan** (A.D. 1492), are essentially in a transition style with Gothic tendencies, while his later works exhibit classical "correctness."

**The Cancellaria Palace**, 1505 (No. 157).

The **Giraud Palace**, 1503 (No. 156).

The **Cortile of S. Damaso**, and **Greater and Lesser Belvedere Courts** in the **Vatican** (A.D. 1503).

**The Tempietto in St. Pietro in Montorio** (1502) is a perfect gem of architecture (No. 160 A, B, C).

**The Cloister of S. Maria della Pace** (A.D. 1504).

Bramante's works of the middle period exhibit especially great refinement in mouldings, carving, and detail; thus he uses flat pilasters, and circular-headed openings, framed by square lines (Nos. 157 A and 167 D). His "Ultima Maniera" is seen in the bold and grand designs for the Courts of Law (never finished) near the Tiber, and in his "projects" for St. Peter's.

An article on "The School of Bramante," by Baron von Geymüller, which appeared in the R.I.B.A. Transactions, 1891, is interesting, as tending to show the enormous influence which Bramante, who may be called the "continuator" of the style of Alberti, exerted on the development of the Renaissance in Rome and in every European country. It is well worth careful reading.

# ROMAN RENAISSANCE EXAMPLES III.



## BRAMANTE'S PUPILS AND FOLLOWERS.

**Baldassare Peruzzi (1481–1536) was the architect of the *Villa Farnesina* at Rome, of which a slight description is given below.**

**Dorchester House, Park Lane, London, by Vulliamy, is founded on this design.**

The ***Massimi*** *Palace, Rome*, A.D. 1481–1536 (No. 157 C, D), an example full of refinement and beauty, both in design and detail. The ***five-domed*** *Church at Todi, near Perugia* (No. 160), is ascribed to his influence. Few architects of the school were so well trained, and able to execute works so finished in detail, whether of plan, section, or elevation.

The ***Villa Farnesina*** (A.D. 1506) is a two-storeyed structure (each storey comprising an order) with boldly projecting wings, central arched loggia and rich crowning frieze. The latter was ornamented with cupids holding festoons, and contained windows, a system afterwards made use of by Sansovino in the Library of S. Mark's (No. 171). The remarkable frescoes of the Villa Farnesina were executed by Peruzzi and Raphael.

**Ant. di Sangallo** the younger (A.D. 1485–1546) erected the *Farnese Palace at Rome* (Nos. 158 and 159). This is the grandest of all the examples of the school. It is executed in brick walling with travertine dressings from the Colosseum.

It is notable for the absence of pilasters, appearing only as frames to the windows of each storey, which is well marked horizontally by projecting string courses. The grand crowning cornice was added later by Michael Angelo, but was a special feature in the design, from the first (No. 159). The internal open court ("cortile") is in the style of the Colosseum; a reduced cast of part of the same may be seen at the Crystal Palace Italian Renaissance Court.

**Raphael** (A.D. 1483–1520) was the nephew and pupil of Bramante. Authorities differ as to his exact responsibility for the designs ascribed to him.

At Rome, he was engaged on St. Peter's (but did little), and designed the *Façade of San Lorenzo*, and also the ***Villa Madama*** (A.D. 1516), the stucco decorations being by Giulio Romano.

At Florence, the *Pandolfini Palace*, erected in 1530 (ten years after his death), is one of his most famous designs.

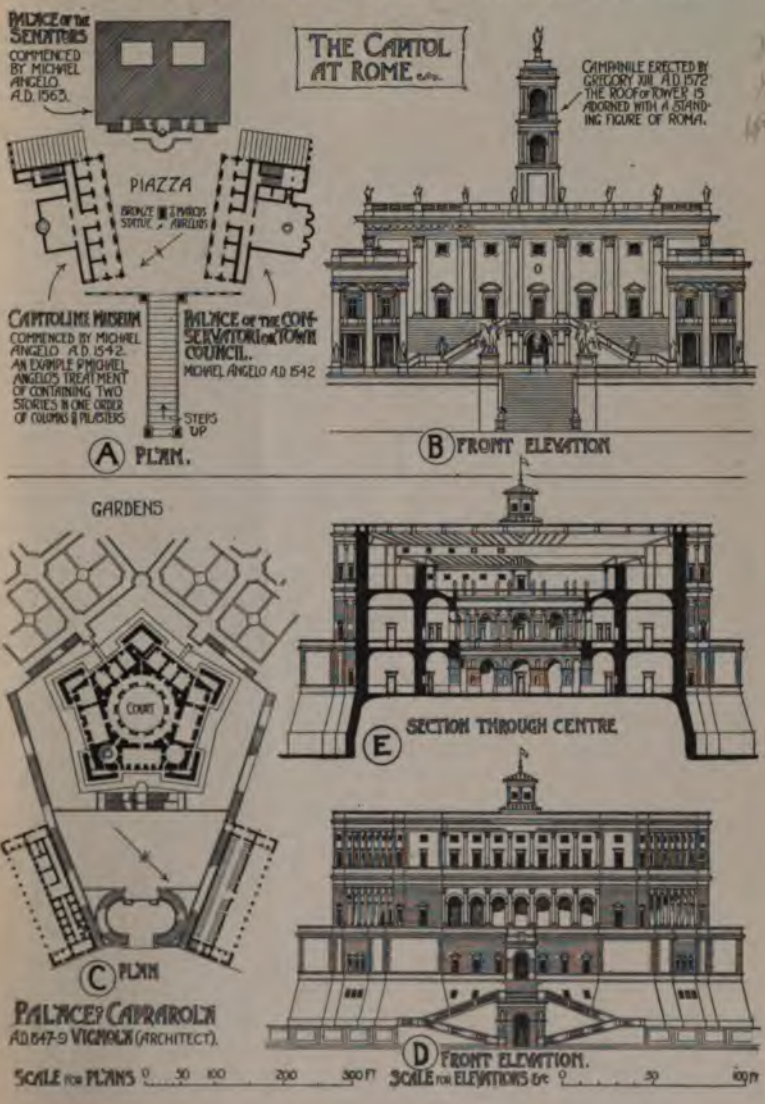
The excavation of the Baths of Titus gave Raphael an opportunity of studying the interior decoration of ancient Roman buildings. The use of hard stucco, combined with painted work, was one of the things learned by him from these remains. The surface of the vaulting was found to be painted with studies from



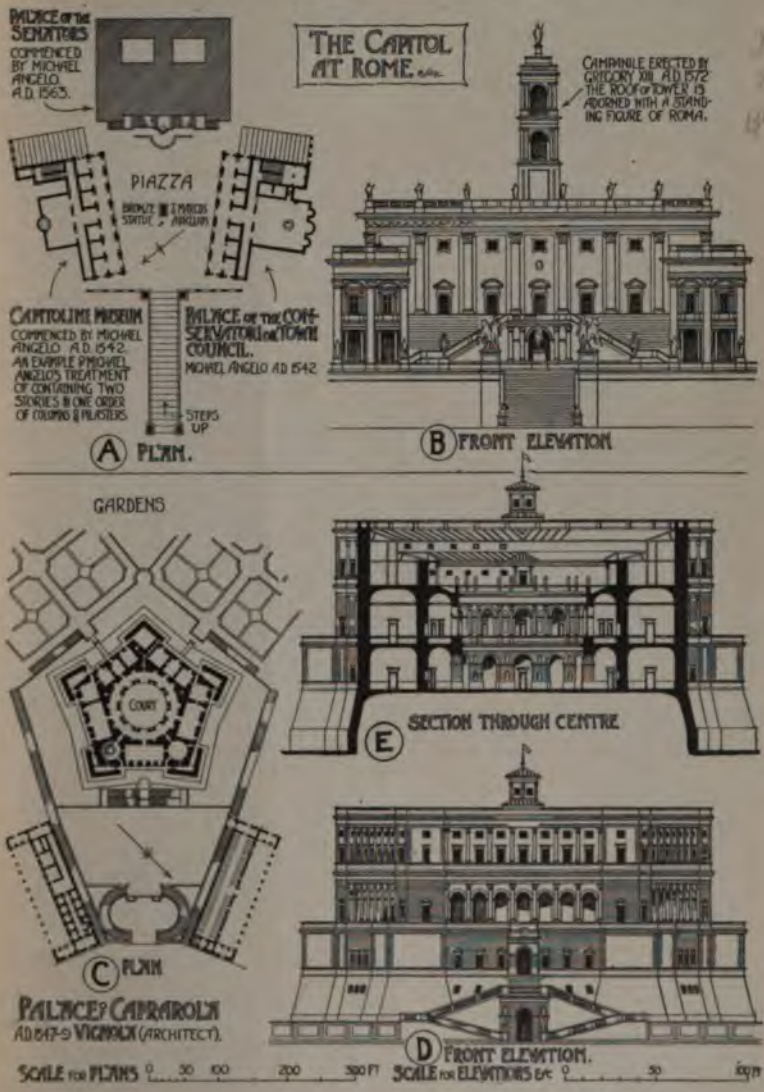
161. THE CAPITOL, ROME.

*(Centre)* Palace of the Senators, by Michael Angelo (1563).
*(Right)* Palace of the Conservatori, do. (1542).

# ROMAN RENAISSANCE EXAMPLES IV.



# ROMAN RENAISSANCE EXAMPLES IV.



the vegetable kingdom, with figures of men and animals; and with such objects as vessels and shields, all blended together in fanciful schemes, rendered pleasing by bright colouring.

The designs for the decoration of the *Loggie at the Vatican*, which he carried out, were based on these Roman examples.

**Giulio Romano** (A.D. 1492–1546) was a pupil of Raphael, and was the architect of buildings at Mantua, including his masterpiece the *Palazzo del Té*. This latter is a one-storey building, decorated with the Doric order. It is quadrangular in plan, and comprises large saloons round a central court. The recessed arcaded façade to the garden and the painted ceilings are remarkable, and the design is perhaps the nearest approach made on the part of a Renaissance architect to reproduce the features of a Roman villa.

## G. BAROZZI DA VIGNOLA (A.D. 1507–1573)

exercised great influence by his writings. He was the author of "The Five Orders of Architecture." Among his designs are:—

The **Villa of Pope Julius** (A.D. 1550) at **Rome**, now the Etruscan Museum (No. 199 D, E).

The **Palace at Caprarola** (see page 357) (No. 162). A pentagonal semi-fortress situated on the spur of a mountain looking down into the valley, recalling Hadrian's tomb in mass and outline, while the internal circular court is suggestive of the Colosseum at Rome.

The **Church of S. Andrea**, with elliptical dome, A.D. 1550 (No. 160).

The **two small cupolas at St. Peter's** (No. 164 E).

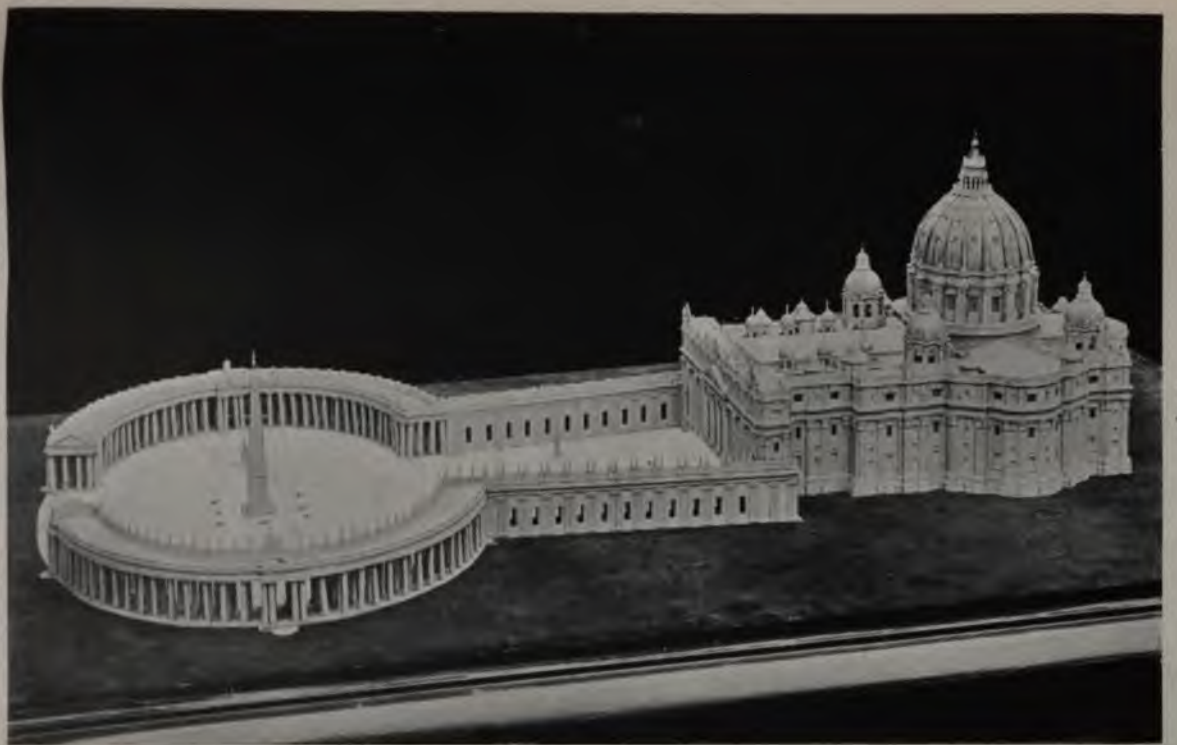
The **municipal palace at Bologna** (unfinished).

The **Gesù Church** (A.D. 1568–1632) (No. 160), one of many designed on the lines of St. Peter's at Rome.

Being taken back to France by Francis I., he exercised a great influence on the development of French Renaissance architecture.

## MICHAEL ANGELO (A.D. 1474-1564),

a Florentine, famous sculptor, and painter of the *roof of the Sistine Chapel* in the Vatican (A.D. 1508) representing the Fall and Redemption of Mankind, also turned his attention, late in life, to architecture. He finished the Farnese Palace, and carried out the **Dome of St. Peter** (see below). Perhaps his best work is the reconstruction of the **Palaces of the Capitol** (A.D. 1540–1644) (Nos. 161 and 162), a grand example of a one-order building. Reckless detail mars all his architecture.

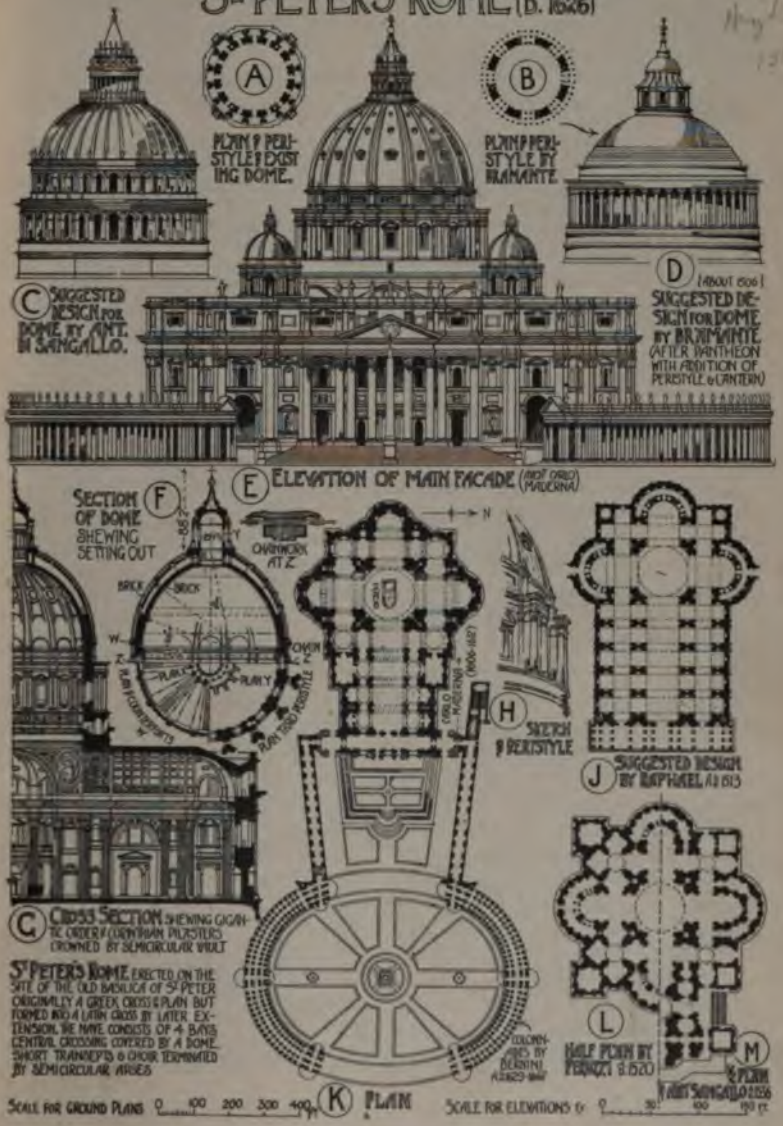


163. S Peter, Rome.

Showing Colonnades. (From a model.)

# ROMAN RENAISSANCE EXAMPLES V.

## St PETER'S ROME (A. 1506 / D. 1626)




**St PETER'S ROME** ERECTED ON THE SITE OF THE OLD BASILICA OF St PETER ORIGINALLY A GREEK CROSS & PLAN BUT FORMED INTO A LATIN CROSS BY LATER EXTENSION. THE NAVE CONSISTS OF 4 BAYS & CENTRAL CROSSING COVERED BY A DOME. SHORT TRANSEPTS & CHOIR TERMINATED BY SEMICIRCULAR APSES

His principal work at Florence is the **Mausoleum** (or New Sacristy) (A.D. 1520) (No. 154 D), and the Mediceo and Laurentian Library, both at S. Lorenzo.

## St. Peter's, Rome (1506–1626).

*A sketch of the* **general scheme** *of the construction of this building, with various data, is given :—*

In plan (Nos. 164 and 174) it is a Greek cross; the later extension of the nave and aisles toward the west, which practically brings the whole scheme to a Latin cross, is excused, solely as inclosing the whole of the area of the previously existing church. The nave consists of four bays of immense size; the central crossing is covered by the dome, the short transepts are terminated by semicircular apses, the western arm being precisely similar. The high altar stands under the dome, within a "baldachino," over the alleged tomb of St. Peter. A vestibule at the East end extends the whole width of the church. The chancel of St. Peter's is at the west end.

The interior (No. 165) has one gigantic order of Corinthian pilasters, crowned with semicircular barrel vaults. The walls are faced with plaster, and coloured to imitate marble, producing a rich though false effect; the dome is beautifully decorated in mosaic, and reminds us of Pope's words :

> "No single parts unequally surprise,
> All comes united to th' admiring eyes."

The exterior (Nos. 163, 164 and 166), roughly executed in travertine, has an immense order of Corinthian pilasters, with an attic surrounding the entire building. The view of the dome is entirely cut off, except at a distance, behind the screen wall of the now extended nave. A good idea of the building, in its general distribution, is to be obtained from the model at the Crystal Palace, in which, however, as in most drawings of the church, the detail is rendered less offensive by its smaller scale.

St. Peter's was recognized as a type of which numberless churches were erected throughout Italy.

**Memoranda :**

A.D. 1506.—*Bramante* was the original architect, and formulated a design in the form of a Greek cross with entrances at East end. His design for the dome is shown in No. 164 B, D. Foundation stone laid.

A.D. 1513.—*Giuliano da Sangallo* (d. 1516), ***Raphael***, ***Fra*** *Giocondo* (d. 1515), were entrusted with superintendence of the work. Division of opinion exists as to altering



165. St. Peter, Rome.

original plan to a Latin cross. Raphael's suggested ground plan is shown in No. 164 J.

A.D. 1514.—Death of Bramante.

A.D. 1520.—Death of Raphael.

A.D. 1520.—*Baldassare Peruzzi* appointed architect, but died 1536. His suggested plan is shown in No. 164 L. The capture and sack of Rome disorganized all artistic work.

A.D. 1536.—*Antonio da Sangallo* the younger succeeded him as architect (d. A.D. 1546). Proposed a picturesque design of many orders, with a central dome (No. 164 C) and lofty campanili. His plan is shown in No. 164 M.

A.D. 1546.—*Michael Angelo* appointed architect. He rejected the innovations of Sangallo, restored the design to a Greek cross, simplified the form of the aisles, in which process the masterly planning, by Raphael, of the accessories to the dome, which were to give scale to the interior, disappeared, and strengthened the pillars of the dome, which had shown signs of weakness. He planned and commenced the construction of the great dome, 137 feet 6 inches internal diameter, the drum of which he completed, and at his death (1564) left drawings and models for the completion of the work up to the lantern, the top of which is 405 feet from the ground.

A.D. 1564.—*Vignola* continued the building of the church, adding the cupolas on either side of the great dome. These (No. 163), excellent in themselves, are ineffective in relation to the whole mass.

A.D. 1585–1590.—*Giacomo della Porta* and *Domenico Fontana* erected the dome from Michael Angelo's wooden model.

A.D. 1605–1612.—*Carlo Maderna*, instructed by Paul V., lengthened the nave to form a Latin cross (No. 164 K), and erected the present contemptible façade (No. 164 E.)

A.D. 1612.—*Rainaldi* appointed architect and prepared designs for campanile, but effected nothing.

A.D. 1629–1667.—*Bernini* erected the fourfold colonnades inclosing the piazza in front (Nos. 163, 164 K, E and 166). He also erected the brazen baldachino under the dome (No. 165) with metal taken from the portico of the Pantheon.

> "With arms wide open to embrace
> The entry of the human race."—BROWNING.

In Baron von Geymüller's book, already mentioned, there is a plan, with the portions of separate dates coloured differently, which is very interesting, and also a comparison drawn between

the fundamental principles of design which characterize each scheme.

Compare plans (No. 174):

| | St. Peter's | Milan (No. 137). | St. Paul's. | Sta. Sophia (No. 54). | Cologne. |
|---|---|---|---|---|---|
| Area in sq. yds. | 18,000 | 10,000 | 9,350 | 8,150 | 7,400 |
| Length in yards. | 205 | 148 Pantheon (No. 32). | 170 | 118 | 156 Florence (No. 137). |
| Diam. of dome. | 138 ft. | 142 ft. 6 in. | 100 ft. | 107 ft. | 134 ft. 6 in. |

Other examples in Rome are:—

The **Papal Palaces** (A.D. 1574–1590) on the Lateran, Quirinal and Vatican Hills, by Fontana.

The **Chapel of Sixtus V.** in S. Maria Maggiore, by Fontana (A.D. 1543–1607).

Façade of Church of **S. Giovanni in Laterano**, by Galilei (A.D. 1734).

Portico to the **Basilica of S. Maria Maggiore**, by Fuga (A.D. 1743).

The **Palazzo Borghese** (A.D. 1590), the **Palazzo Barberini**, by Maderna, and the **Fountain of Trevi** (A.D. 1735).

*Note.*—Characteristic Roman ornament is shown in No. 167.

## 4. COMPARATIVE (see page 344).

## 5. REFERENCE BOOKS.

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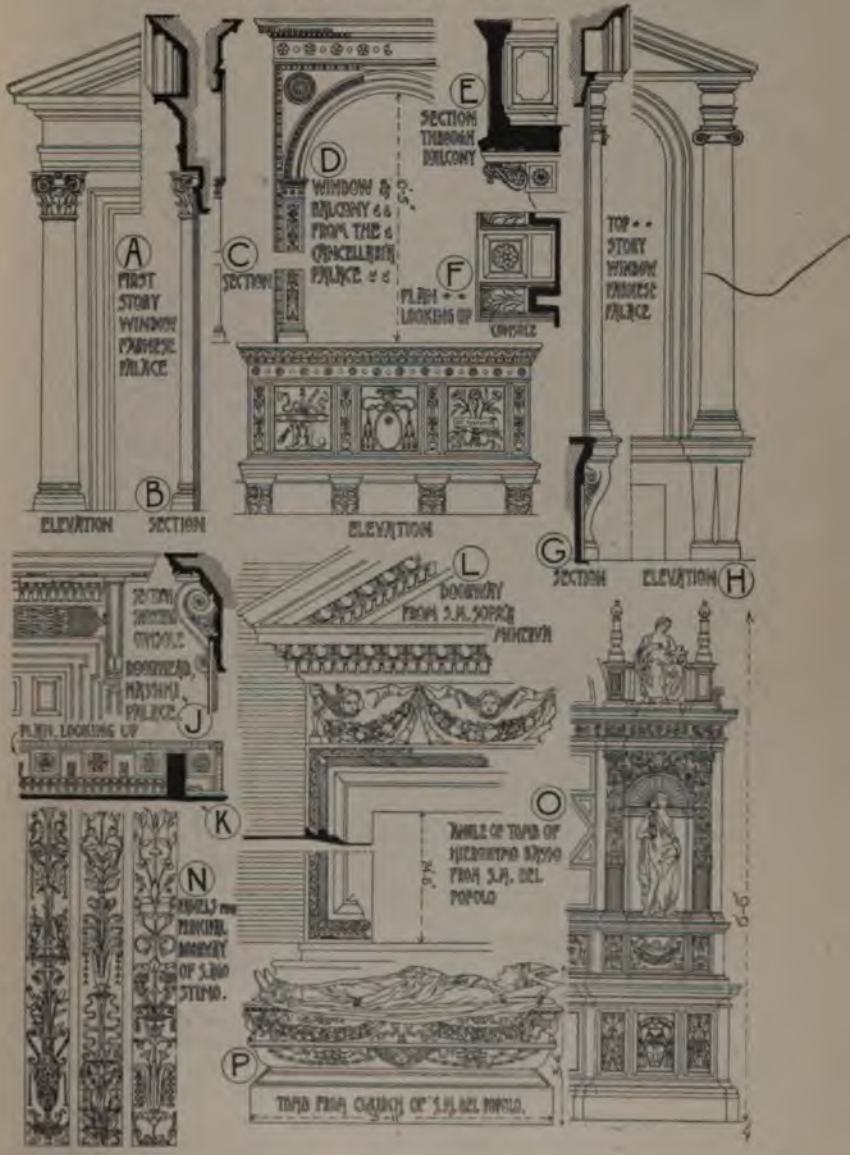
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166. St. Peter's, Rome.

# ROMAN RENAISSANCE ORNAMENT.



# THE VENETIAN SCHOOL.

"Underneath day's azure eyes,
Ocean's nursling, Venice lies,
A peopled labyrinth of walls,
Amphitrite's destined halls,
Which her hoary sire now paves
With his blue and beaming waves.
Lo! the sun upsprings behind,
Broad, red, radiant, half-reclined
On the level, quiver[illegible]ine
Of the water's cryst[illegible]e;
And before that dre[illegible] of light,
As within a furnace bright,
Column, tower, and dome, and spire
Shine like obelisks of fire,
Panting with inconstant motion
From the altar of dark ocean
To the sapphire-tinted sky."—SHELLEY.

## I. INFLUENCES.

**i. Geographical.**—The greatness of Venice was founded in earlier times on her Oriental commerce, due to her important geographical position. The effect of this commercial prosperity is visible well into Renaissance times. The history of the Venetian state was always influenced by the proximity of the sea, and the peculiar formation of the coast.

**ii. Geological.**—The structure of Venice, as a city founded in the sea; its churches, palaces, and houses being set upon piles in a shallow lagoon, had an important influence on its art.

**iii. Climate.**—Favours out-door life. The heat in summer is great, though tempered by sea breezes. The open top storeys, called belvederes, exist in many houses. The northern position renders chimneys more prominent than in other Italian cities.

**iv. Religion.**—Venice continued to maintain a semi-independence of the Pope, due to her political necessities in those days of growing temporal power. Strong loyalty to the State even among the clergy was manifested during the attempted interdict of Paul V. The learned theologian Paolo Sarpi (1552–1623) was the adviser of the State during this crisis (1607). The tolerance of Venetian policy is shown by the erection of the Greek church, an interesting example of the local Renaissance.

**v. Social and Political.**—During the whole of the fifteenth century, Venice was engaged in conquering the surrounding towns, Venetian nobles being appointed their governors.

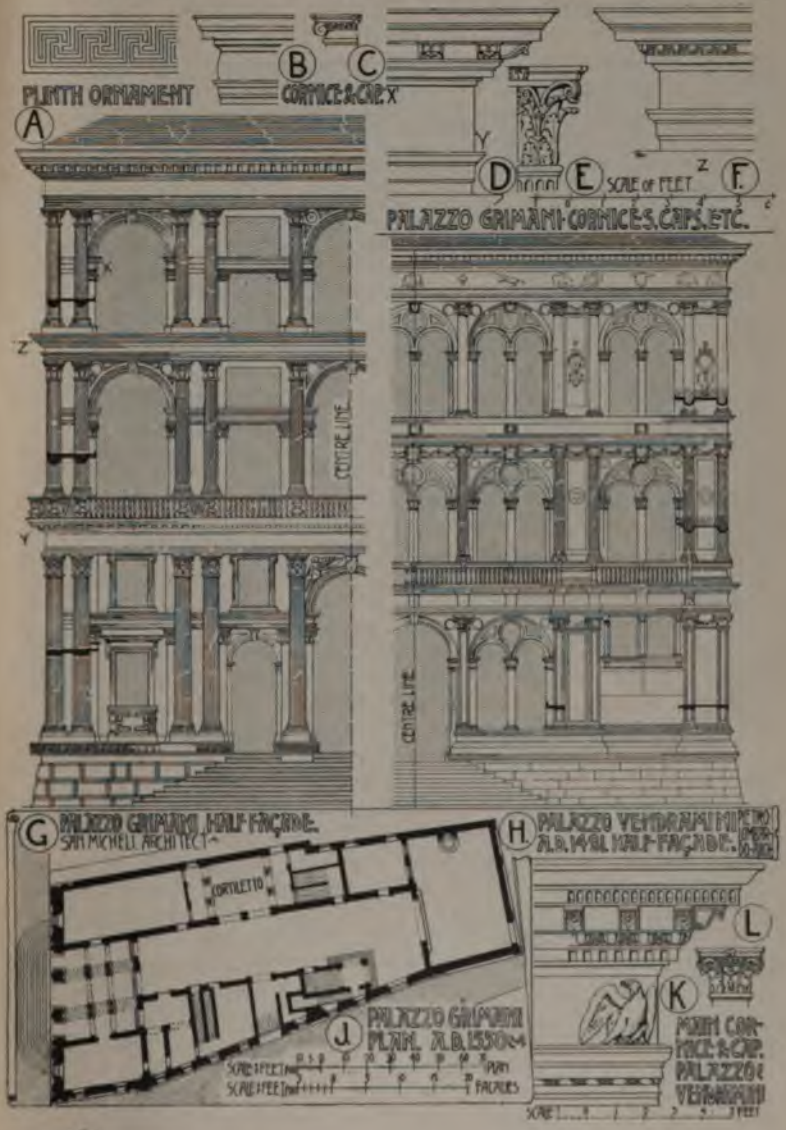
The government of Venice was a republic, and the rivalry of the leading families led to the erection of fine and lasting monu-



168. PALAZZO VENDRAMINI, VENICE.

Early Ren
1400-1500

# VENETIAN RENAISSANCE EXAMPLES I.




169.

ments, such as the palaces which line the Grand Canal; and these moreover were not fortresses, as at Florence, but the residences of peaceable citizens and merchant princes.

**vi. Historical.**—In the middle of the fifteenth century (1453) Constantinople was taken by the Turks, and the supremacy of Venice in the East was undermined. By the discovery of the new route to India, at the close of the fifteenth century, its commerce was diverted to the Portuguese. During the sixteenth and seventeenth centuries they were at constant war with the Turks; eventually in 1715 the w[illegible]le of her possessions, except in North Italy, were taken from [illegible]r. Yet "the arts which had meanwhile been silently developi[illegible] shed a glorious sunset over the waning glory of the mighty republic."

## 2. ARCHITECTURAL CHARACTER.

The Renaissance movement had a very different effect upon the architecture of Venice from that which it produced upon the architecture of Florence, owing to the different circumstances of the two cities. The Venetians had a beautiful type of Gothic architecture of their own, and, being farther from Rome, were not so much under the influence of that city as was Florence. Therefore, between the periods of Gothic and fully-developed Renaissance, we find a period of transition, the earlier buildings in the new style having Gothic in conjunction with Renaissance details. A notable instance is in the pointed arches of the Renaissance façade in the courtyard of the Doge's Palace (No. 171 F).

The architecture of Venice is, in general, of a lighter and more graceful kind than that of Florence. Columns and pilasters are used freely in all designs. A special Venetian feature is the grouping of the windows near the centre, leaving comparatively solid boundaries to the façade (No. 168). The façades are comparatively flat, and have no great projections, in consequence of the houses being situated on the side of canals, and having therefore to keep a straight frontage with the water. The rustication of walls, as at Florence, is comparatively unknown. The façades usually have cornices marking each floor (No. 169), in contrast with the great crowning Florentine cornices.

Extreme depth is sometimes given to the frieze, which is occasionally occupied by windows (No. 171 A, B).

The balconies (No. 170) are a graceful and important feature, and give light and shade to the façade, having the same effect as, and taking the place of, recessing.



170. The Pesaro Palace, Venice. — Bastyan

# VENETIAN RENAISSANCE EXAMPLES II.

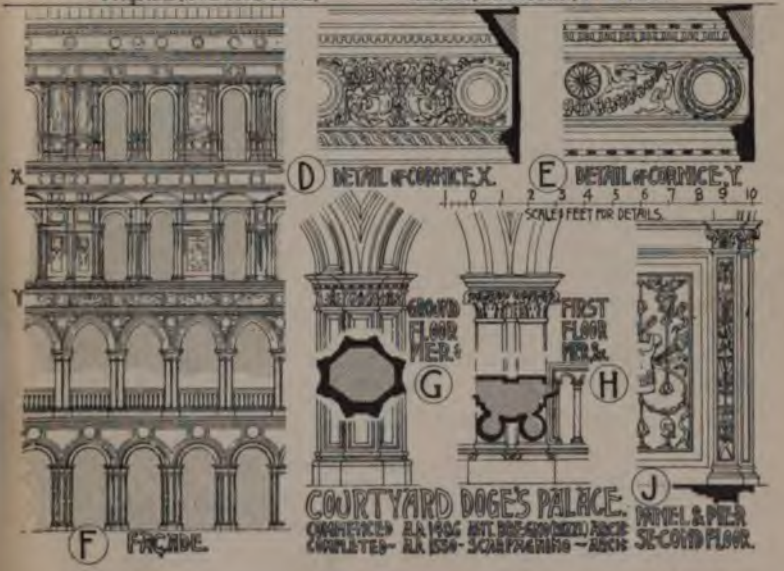






## ST MARK'S LIBRARY.

R.A. 1536, SANSOVINO, ARCHITECT.




## COURTYARD DOGE'S PALACE.

CONSTRUCTED A.A. 1404 ARCH. PORTA (SANSOVINO) FACADE COMPLETED- A.A. 1550- SCULPTURING - ASCH: PANEL & PIER SECOND FLOOR.

The regularity of the disposition of a Venetian façade is described by Browning, who talks of the

> "Window just with window mating,
> Door on door exactly waiting."

In later work, the perfection of the details is the marked feature of the Venetian Renaissance, as, for instance, in St. Mark's Library and the palaces by Sansovino, A.D. 1479–1570. In Longhena's works and other late examples the detail becomes large, and projects boldly. Strong effects of light and shade are produced, and heavy rustication is used to contrast the basement with the order above (No. 170).

## 3. EXAMPLES.

### PALACES.

**The Court to the Doge's Palace** (No. 171) was commenced A.D. 1486, by Ant. Rizzi, and the *Giant's Staircase* was erected by Sansovino in A.D. 1554.

*Note.*—The Geological Museum in Piccadilly is founded on the design of the lower part of the courtyard façade of this palace.

**The Library of St. Mark,** A.D. 1536, was erected by Sansovino (No. 171). The design has been followed in the Carlton Club, London. (The continuation of the design, one order higher, round St. Mark's square, is by Scamozzi.)

**The Zecca, or Mint,** was erected by Sansovino, 1536.

**The Vendramini Palace,** A.D. 1481, by Pietro Lombardo (Nos. 168 and 169), has to each storey an order of engaged columns—the earliest example in Venice. The windows are semicircular, with a Renaissance treatment of tracery.

**The Cornaro Palace,** by Sansovino (A.D. 1532).

**The Grimani Palace,** by San Michele (A.D. 1549), and the **Pesaro Palace,** A.D. 1650–1680, by Longhena (No. 170).

**The Scuola di S. Marco, façade,** A.D. 1485–1533, by Pietro Lombardo.

### CHURCHES.

#### In the early period.

**St. Maria dei Miracoli** (A.D. 1480) (No. 172), by Pietro Lombardo, architect, is noteworthy as having no aisles; the choir is raised twelve steps above the nave, which is covered with a roof of semicircular form, not uncommon in Venice. It is emphasized by a circular pediment on the façade, which feature also

# VENETIAN RENAISSANCE EXAMPLES III.



occurs at **S. Zaccaria, Venice.** The walls are faced internally and externally, with different coloured marbles, which are delicately carved. The sacristy is beneath the raised choir, as shown in No. 172 c.

**S. Salvatore** (A.D. 1530), erected by **Tullio Lombardo, and S. Giorgio dei Greci** (A.D. 1538), by Sansovino (No. 172), are other examples.

**In the later period.**

**St. Francesco della Vigna,** by Palladio (A.D. 1534–1568).

**Il Redentore,** by Palladio (A.D. 1576).

**St. Giorgio Maggiore,** by Palladio (A.D. 1560) (No. 172). Façade by Scamozzi (A.D. 1575) is instructive, as exhibiting the difficulties of adopting the classic orders to buildings for modern purposes.

**S. Maria della Salute** (A.D. 1632), by Longhena (Nos. 173 and 174 E), is erected on the Grand Canal, and groups most beautifully with the surroundings. In plan it consists of an octagon with chapels projected one on each side, the central space being covered by a circular dome. Notice the buttresses (No. 173) to the central dome over the aisles, and how their fanciful shapes contribute to the effect. A secondary dome covers the chancel, projected on the side opposite the entrance, and a small tower also carried up, contributes to the picturesque grouping of the exterior.

*Note.*—Characteristic Venetian ornament is shown in No. 175.

## 4. COMPARATIVE (see page 344).

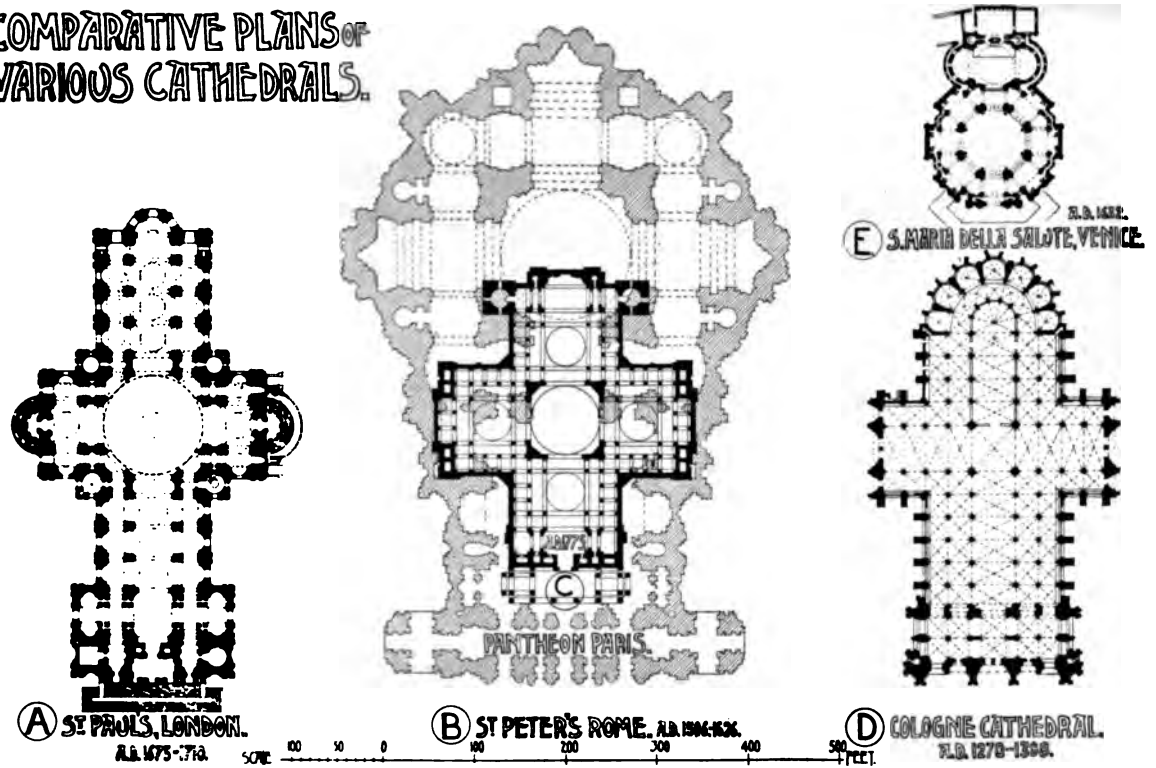
### VICENZA AND VERONA

are also notable cities to the student of Renaissance architecture; they are counted in the Venetian School.

### VICENZA.

Vicenza is interesting as the birthplace of **Palladio** (A.D. 1518–1580), and as the scene of his labours. Palladio indefatigably studied, and measured, all the Roman antiquities, as may be seen by the drawings in his book on architecture. His designs are mostly erected in brick and stucco, the lower storey being rusticated, and the upper ones having pilasters. A second method of his was to comprise two floors in the height of the order (No. 177 G), to obtain scale in that feature, and unity and dignity in the whole composition. There are several examples in Vicenza of both of these methods, as the **Palazzo Barbarano**

# COMPARATIVE PLANS OF VARIOUS CATHEDRALS.



(A.D. 1570) (No. 177 H), **Palazzo Chieregati** (A.D. 1560), and the **Palazzo Tiene** (A.D. 1556), and the **Palazzo Capitanio** (No. 177 G).

The **Teatro Olimpico** (A.D. 1580), with the stage built in perspective, is an interesting building.

The arcade surrounding and casing the mediæval **town hall** at **Vicenza**, is his most famous work (Nos. 176 and 177 A, B, C). It is built in a beautiful stone, and is in two storeys of Doric and Ionic orders, separated by arches supported on a minor order.

The **Villa del Capra** (generally known as the Rotunda) near Vicenza is an example of the application of the features of classical architecture carried to an extreme (Nos. 177 D, E, F and 199 B). It is a square building, with a pillared portico on each face leading to a central rotunda, which appears externally as a low dome above the tiled roof, which is hipped all ways from the angles of the main building. The design of this building was utilized by Lord Burlington at Chiswick, and it has also been copied elsewhere, both in England and on the Continent.

Although Palladio's designs were mainly executed in mean materials, and were often never fully carried out, still their publication in books had a far-reaching influence on European architecture.

### VERONA.

At **Verona** the architect **San Michele** (A.D. 1484-1549), a man of great ability, erected several palaces, of which the **Palazzi Pompeii** (No. 178 A), **Bevilacqua**, and **Canossa** are the most notable.

He was more or less a military architect, being the originator of a new system of fortification. The entrance gateways through the fortifications of Verona are excellent instances of his power of giving character to his works; they are bold and original in treatment. He gave great extension to the use of rustication as a means of effect.

The **Palazzo del Consiglio** (A.D. 1500) at Verona was erected by **Fra Giocondo**, and is chiefly remarkable for the coloured "sgraffito work" of the façade.

*Note.*—Characteristic ornament is shown in No. 179.

## 4. COMPARATIVE TABLE OF THE FLORENTINE, ROMAN, AND VENETIAN SCHOOLS.

### A. Plans.

*Florence.*—The utmost simplicity and compactness, a style of planning adapted to town, rather than country buildings.

Staircases inclosed in *walls* vaulted by ascending barrel vaults (Nos. 152 and 154). In church work, the Roman coffered and vaulted nave (No. 154 E), the Byzantine domical treatment (No. 154 A), and the Basilican (No. 154 J), were all followed.

*Rome.*—More varied planning on a grander scale (Nos. 157, 159 and 160). Staircases, circular and elliptical, with columnar supports, are a feature, as those in the Barberini, Corsini, and Braschi palaces and the Scala Regia of the Vatican. In church work, the dome over a circular space (Roman type) (No. 160 C), and the dome on pendentives (No. 160 G), were used.

*Venice.*—Where an open site permits, a broken, complex, and picturesque disposition is adopted, otherwise a straight front to the canals has to be adhered to (No. 169). Staircases, developed in a central area, and with arcades around, belong to this school. In church work, the Roman barrel vaulted type (No. 172 D), the dome on pendentives and Basilican plan (No. 172), were used.

### B. Walls.

*Florence.*—The style of fenestration and rusticated quoins (Nos. 152 and 153). The astylar treatment is adopted, which dispenses with orders and makes each storey complete in itself, while subordinated as a whole by the great top cornice (No. 152). In pure wall treatment it is akin to Egyptian work.

*Rome.*—The style of pilasters (No. 156). Storeys are united by an order upon a grand scale (No. 161), several storeys high. Windows become disturbing elements, without which the designs would have the unity of Greek temples.

*Venice.*—The style of columns (Nos. 168 and 170). Storeys are defined by an order to each. Excessive separation by the entablatures is modified, and corrected by breaking them round the columns. In the multiplicity of parts the style allies itself to the Roman, as in the Colosseum.

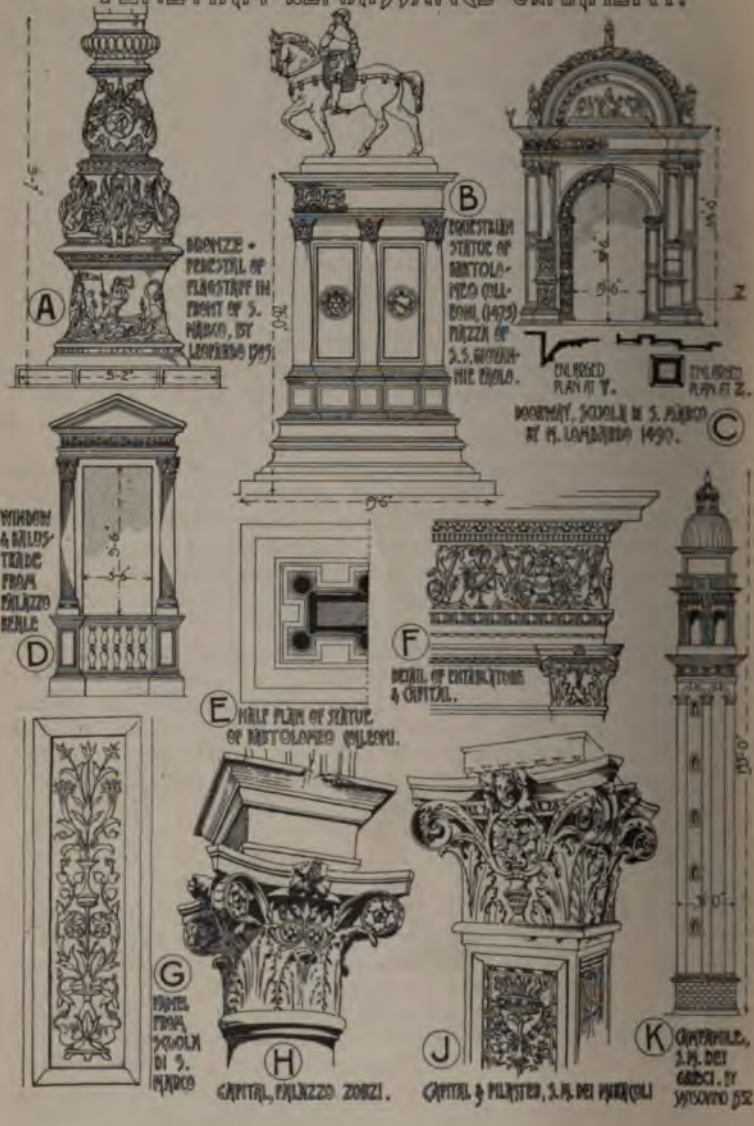
### C. Openings.

*Florence.*—Openings are small, wide-spaced, and severe in treatment (No. 152). The typical opening is an archway in rusticated work, divided by a column carrying two minor arches, forming a semi-tracery head (No. 155 D). In courtyards, arches resting directly on columns are typical (No. 152).

*Rome.*—Openings seem small in relation to the great order adopted (No. 156). A square-headed opening is treated with a framework of architrave mouldings (No. 157), and later on with orders on a small scale, surmounted by pediments (No. 158).

*Venice.*—Openings are large, numerous, and close set; the arcade and colonnade, as seen in the Colosseum, are adapted to

# VENETIAN RENAISSANCE ORNAMENT.





176. The Basilica at Vicenza, by Palladio.

palace facades. The treatment of a centre and two wings, obtained by window spacing, is continued from previous periods (Nos. 168 and 170).

### D. Roofs.

*Florence.*—Flat pitch tiled roofs are sometimes shown (No. 153).

*Rome.*—Rarely visible (Nos. 156 and 158).

*Venice.*— Balustrades preferred (No. 171 A).

*Florence.*—*Vaults*, raking vaults to staircases, and simple cross or tunnelled waggon-vaults in halls, generally frescoed.

In churches, the low dome over the crossing was a favourite feature (No. 154).

*Rome.*—*Vaults* of a similar kind are more elaborated, treated with coffering or stucco modelling (No. 159), after the style of the then newly-discovered Baths of Titus. Domes mounted upon a high drum and crowned with a lantern are universal in churches (No. 160).

*Venice.*—*Vaults.* Pictorial effect is attempted in halls and staircases. Domes are grouped with towers in churches (Nos. 172 and 173).

In Milan and other North Italian cities, the low internal cupola was often covered externally by a lofty structure in diminishing stages, as at the Certosa, Pavia, and S. Maria della Grazie at Milan.

### E. Columns.

*Florence.*—Early examples do not have the orders (No. 153), though the columns are used to arcades, the arches springing direct from the capitals (No. 152).

*Rome.*—The application of the orders on a great scale is the *motif* of the style. In their use, the scale of openings, and the internal necessities of the building, are not regarded, and even such features as balustrades are not regulated by use, but by the system of proportion to the order employed (Nos. 156, 158 and 161).

*Venice.*—The problem of successive tiers of orders is worked out (Nos. 168, 169 and 170); projecting columns are preferred to pilasters, and entablatures are usually broken round these projections.

### F. Mouldings.

*Florence.*—Mouldings are few and simple. Those between storeys are reduced to the minimum, to give full effect to the grand crowning cornice, whose details are based on classic examples (Nos. 152 and 155).

# RENAISSANCE EXAMPLES BY PALLADIO




A HALF ELEVATION



B SECTION



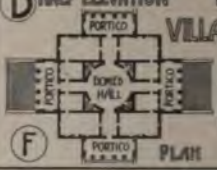
C GROUND PLAN

## THE BASILICA AT VICENZA

THE COLONNADES SURROUNDING THE MEDIAEVAL TOWNHALL WERE ERECTED IN 1549 AND FORM PALLADIOS BEST KNOWN WORK, THE SETTING OUT OF THE BAYS IS DETERMINED BY THE WIDTH OF THE OPENINGS OF THE GOTHIC HALL, AT THE ANGLES WHERE HE WAS UNRESTRICTED PALLADIO HAS NARROWED THE ARCADE THEREBY GIVING GREATER STRENGTH WHERE REQUIRED




D HALF ELEVATION HALF SECTION E




F PLAN

## VILLA CAPRA, VICENZA

GENERALLY KNOWN AS THE ROTUNDA IS AN EXAMPLE OF THE APLICATION OF THE FEATURES OF CLASSICAL ARCHITECTURE TO A COUNTRY VILLA




G PALAZZO DEL CAPITANIO 1571

PLAN OF FRONT WALL

SCALE FOR ELEVATIONS

10 5 0 10 20 30 40 50 60 70 80 90 100 FEET




H PALAZZO PORTO BARBARANO 1570

PLAN OF FRONT WALL

SCALE FOR PLANS

10 0 10 20 30 40 50 100 150 FEET

*Rome.*—Close adaptation of the features of the classical orders marks the Roman style (Nos. 159 and 167), until Michael Angelo, and his followers, despising the sound methods of the earlier architects, introduced their arbitrary details.

*Venice.*—Prominence of detail is characteristic of the late Renaissance works in Venice; entablatures have deep soffits and keystones, etc., and great projection, while spandrels have figures in high relief (Nos. 169, 171 and 175).

### G. Ornament.

*Florence* (No. 155).—Decoration, such as carving and sculpture, is collected in masses, which contrast with the plain wall surfaces. Note the great stone shields at the angle of the palaces (No. 153).

Sculptured ornament to friezes carved with infant genii, scrolls, fruit and masks, is abundantly used in the three schools.

*Rome* (No. 167).—Stands midway between Florentine and Venetian work, having more variety than prevails in the sternness of the former, and less exuberance than is found in the latter.

*Venice* (No. 175).—Decoration is equally spread throughout the façade. Every spandrel has its figure, and the high relief of sculpture competes with the architectural detail in prominence (No. 170).

## 5. REFERENCE BOOKS.

"Calli e Canali in Venezia" (published by Ongania). 2 vols. Venice, 1890–1894.

Cicognara (Conte F. L.).—"Le Fabbriche e i Monumenti cospicui di Venezia." 2 vols., folio. Venice, 1838–1840.

Paoletti (P.).—"L'Architettura e la Scultura del Rinascimento in Venezia." 3 vols., folio. Venice, 1893, etc.

Ruskin (J.)—"Examples of the Architecture of Venice." Folio. 1851.

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Schmidt (O.).—"Vicenza." Folio. 1898.

Oliphant (Mrs.).—"Makers of Venice." 8vo. 1887.

## MILAN AND GENOA.

Although these cities formed no distinct school, as Florence, Rome, and Venice, there were many noteworthy buildings erected in them.

### MILAN.

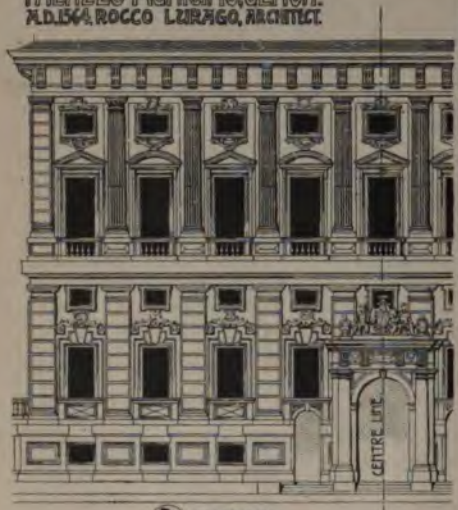
Milan was, as it is now, one of the richest and most populous of Italian towns. Brick and terra-cotta were the materials chiefly to hand, and were employed in the Church of **S. Maria della Grazie** (A.D. 1492) (see page 326), by Bramante, and in the

# RENAISSANCE EXAMPLES IN GENOA & VERONA.

SCALE OF FEET FOR FAÇADES. SCALE OF FEET FOR SECTIONS. SCALE OF FEET FOR PLANS.

## PALAZZO MUNICIPIO, GENOA.

A.D. 1564. ROCCO LURAGO, ARCHITECT.




B FAÇADE.

## PALAZZO POMPEI, VERONA.

A.D. 1530. SAN MICHELE, ARCHITECT.




A FAÇADE.



C CROSS SECTION, SHOWING GRAND STAIRCASES FOUNTAINS IN GARDEN WALL, FIRST FLOOR LEVEL



D LONGITUDINAL SECTION.

EXAMPLE OF STAIRCASE AND VISTA TREATMENT OWING TO SLOPE OF SITE.




F GROUND FLOOR PLAN.



E FIRST FLOOR PLAN.

great courtyard of the **Ospedale Maggiore** (A.D. 1457), by Filarete, a Florentine. Both these buildings possess a considerable amount of Gothic feeling; the detail is delicately and richly modelled, and is very suitable to the material employed.

**S. Satiro at Milan** (A.D. 1474), by Bramante, is famous for its chancel wall, treated in perspective, and for its octagonal sacristy.

The powerful family of the Visconti greatly encouraged art, and commenced the Cathedral of Milan, and the western façade (A.D. 1476) of the **Certosa at Pavia**, near Milan, which is probably the most important of the early Renaissance creations. It is executed in marble, and is specially remarkable for the small scale of its parts. The leading lines are essentially Lombardian Gothic, clothed with Renaissance details. The arcaded galleries, the niches with statues executed by the greatest sculptors of the day, and the wealth of beautifully executed detail, make it one of the richest and most perfect specimens of the architect and sculptor's art. Consult "Architecture Italienne," by Callet and Lesueur.

## GENOA.

**Alessi** (A.D. 1500–1572), a pupil of Michael Angelo, was the principal Genoese architect, and erected many of the more important buildings in the city. The building material to hand was brick, which was not used as such, but covered with stucco, to resemble stone-work.

The Genoese palaces are remarkable especially for the entrance courts, the arrangement of the vestibules, courtyards, and flights of steps; advantage being taken of the sloping sites to produce beautiful vistas of terraces and hanging gardens (No. 178 D).

The Genoese buildings have their basements generally rusticated; pilasters are freely introduced as a decorative feature; while the façades are crowned by a bold projecting cornice, supported by consoles (No. 178 B), the depth of the topmost storey, whose windows occupy the square intervals between these brackets. Many of the palaces are painted wholly in one colour, and receive their name from it, as the Palazzo Bianco (white), Palazzo Rosso (red). This deep rich colouring, with the help of the Italian sun, gives them a very bright appearance. The **Palazzo Municipio** (Doria-Tursi) (A.D. 1564) (No. 178) and the **Palazzi Durazzo, Balbi, and Cambiassi** are the best known. **S. Maria di Carignano** (A.D. 1552), also by Alessi, was designed on the lines of Raphael's plan of S. Peter, Rome. Characteristic ornament is shown in No. 179. Consult "Modern Palaces of Genoa," by P. P. Rubens; also Gauthier's "Genoa."

# RENAISSANCE ORNAMENT IN GENOA & VERONA



## THE ROCOCO STYLE.

The **Rococo**, or **Baroco**, style is a debased application to architecture of Renaissance features, which was followed in the seventeenth century. Such work is to be distinguished from the mixtures of certain forms of the early Renaissance, when the style was commencing, because the Rococo period, coming after the reign of a highly systematized classical style, represents an anarchical reaction. Sinuous frontages, broken curves in plan and elevation, and a strained originality in detail, are the characteristics of the period. Columns are placed in front of pilasters, and cornices made to break round them. Broken and curved pediments, huge scrolls, and twisted columns are also features of the style. In the interiors, the ornamentation is carried out to an extraordinary degree, without regard to fitness or suitability, and consists of exaggerated and badly-designed detail, often over-emphasized by gilding and sculptured figures in exaggerated attitudes. These features are specially to be noticed in the **Jesuit churches** throughout Italy and Europe. This style, commencing at the time when the movement in religion connected with the Jesuits was in progress, was adopted by them for its essentially modern character, and its almost universal extension is a monument to their activity. The attentive student will trace in the later period of the Renaissance movement the application of classical ideas to modern forms, beneath the trappings of bad detail.

**Carlo Maderna** (1556–1639), **Bernini** (1589–1680), and **Borromini** (1599–1667), are among the more famous who practised this debased form of art. Among the most outstanding examples are the Roman churches of **S. Maria della Vittoria** by Maderna, **S. Agnese** by Borromini, and many churches at Naples.

| ITALIAN RENAISSANCE. | FRENCH RENAISSANCE. |
|---|---|
| Principal buildings erected in towns, as Florence, Rome, and Venice, being palaces for kings, dukes and wealthy and powerful popes (Nos. 153, 156 and 168). | Principal buildings erected in the country, mostly on the banks of the Loire, being palaces built for royalty and nobility, as Chambord (No. 181). |
| Severe classic disposition not only appropriate but necessary in the narrow streets of Florence and Rome, or on the straight waterways of Venice. | The picturesque disposition of Gothic origin, more in keeping with the country surroundings, where the chief buildings were erected (No. 182). |
| Influence of ancient Rome and her buildings apparent in greater purity of detail. | Influence of Rome less apparent, partly because of distance and association. |
| A street front in Florence, Venice, or Rome is only seen from the street, and the architectural features are often in fact *appliqué*, without reference to what was behind (No. 168). | A country *château* is seen on all sides, and the importance of a picturesque grouping from every point of view is apparent (Nos. 181, 182). |
| Predominant characteristics are stateliness and horizontality. | Predominant characteristics are picturesqueness, and a tendency to Gothic verticality (No. 183). |
| Early buildings are principally churches, in consequence of the comparative fewness of these buildings erected in the Middle Ages. It was essentially a church-building age, although the number of Italian palaces of the epoch was very large (Nos. 154, 160, 164, 172 and 173). | Early buildings are principally *châteaux* for the nobility. Francis I. was a monarch with literary and artistic tendencies. The enormous number of the churches of the Middle Ages sufficed. It was essentially a palace-building epoch. |
| The country houses of the nobles in the Venetian territory, in the style of Palladio, are symmetrical and stately, with no traces of Gothic influence (No. 177). | The *châteaux* on the Loire are irregular Gothic castles, with a coating of Renaissance detail (Nos. 181 and 182). |

## 3. EXAMPLES.

### SECULAR ARCHITECTURE.

The style may be divided up into the following periods:—

The *Early Renaissance* (A.D. 1453–1580) or 16th century.

The *Roman (Classic) period* (A.D. 1580–1715) or 17th century.

The *Decline (or Rococo) period* (A.D. 1715–1774) or 18th century.

A chronological review, however, of the principal buildings is given, with notes on the general development of the style.

**The Château de Blois** (A.D. 1500), erected by Louis XII.



180. Château de Blois.—
François Premier Escalier.



and Francis I., is one of the more important examples (No. 180). The pilaster treatment of the façade, the mullioned windows showing the preference for the square section of mullion, the rich crowning cornice and carved roof dormers, are notable. The shell ornament, introduced from Venice, is largely employed. In the view given of the famous "*Staircase Tower*" by Francis I., notice the letter F among the carved balusters, and in the bosses to the vaulting; also the repetition of the carving of the salamander, the emblem of Francis I. (No. 180).

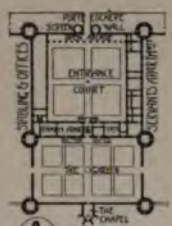
**The Palace at Fontainebleau** (A.D. 1528) was erected by Le Breton, architect, for Francis I., and Vignola seems to have been engaged on it. The student should notice the remarkable irregularity of its plan, due in part to the convent it replaced. Contrary to Blois, the chief interest of this example lies in the sumptuous interiors, as in the saloons decorated by Primaticcio (No. 186). The exterior is remarkably plain.

**The Château de Chambord** (A.D. 1526) (Nos. 181 C, D, and 182) is one of the most famous erected in the Loire district, in central France, by Pierre Nepveu, and possesses a semi-fortified character. The traditional circular towers of defence, roofed with slate cones, are incorporated in a palace design infused with Italian detail. These conical roofs are broken up, where possible, by rich dormers (No. 186 K, L, M) and tall chimneys, which give to the building its characteristic confusion, yet richness, of sky-line. The central portion, corresponding to the keep of an English castle, is surrounded, and protected on three sides, by buildings inclosing a courtyard; the fourth side is defended by a moat. The central feature, or donjon, is square on plan, with four halls as lofty as the nave of a church, tunnel-vaulted with coffered sinkings; at the junction of these halls is the famous double spiral staircase, built up in a cage of stone, whose lantern crowning is the central object of the external grouping. The smallness of scale in regard to mouldings, the flatness of the projection to the pilasters, the Gothic feeling throughout the design, especially the high-pitched roofs, the ornamented chimneys, and the vertical treatment of the features generally, make this example one of the most characteristic of Early French Renaissance buildings.

It may be compared with advantage to the pentagonal semi-fortress of Caprarola (No. 162), by Vignola.

**The Louvre at Paris.** This may be taken as the most important building in the style; its construction lasted from the time of Francis I. to Louis XIV., and the building exhibits, in consequence, a complete history of the progressive stages of the French Renaissance manner.

# FRENCH RENAISSANCE EXAMPLES 1.




A PLAN



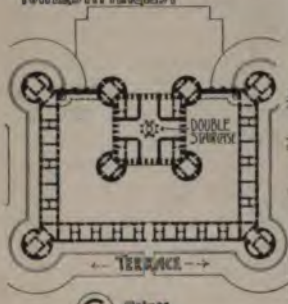
B ELEVATION TO GARDEN FRONT.

CHATEAU-DE-BURY NEAR BLOIS A.D. 1520.

## CHATEAU DE CHAMBORD.

A.D. 1526. PIERRE NEPVEU ARCHITECT.

THE PLAN CONSISTS OF 2 SQUARES, THE FACE OF THE SMALLER ONE FORMING CENTRE OF MAIN FACADE AND HAVING 4 ROUND TOWERS AT ANGLES.




C PLAN

LANTERN COVERING THE FAMOUS DOUBLE SPIRAL CASE.



D ELEVATION OF CENTRAL PORTION

## THE LOUVRE PARIS, COVERING AREA OF 40 ACRES, ERECTED AT DIFFERENT PERIODS BY VARIOUS ARCHITECTS (SEE PLAN)

E



PORTION OF FACADE A.D. 1546. PIERRE LESCOT ARCHITECT.

NAPOLEON I & III 1806 -1857. PERCIER & FONTAINE. VISCONTI & LEFUEL ARCH^TS
LOUIS XIV. AD 1675. PERRAULT ARCHITECT.
LOUIS XIV AD 1660. LE VAU ARCHITECT.
LOUIS XIII AD 1624. LEMERCIER ARCHITECT
HENRY IV & 1595-1608 B^G J DUCERCEAU ARCH^TS
HENRY II AD 1578. TH & L METEZEAU ARCH^TS
FRANCOIS I & 1546 PIERRE LESCOT ARCH^T

SCALE FOR PLANS
100 0 100 200 300 FEET

## BLOCK-PLAN OF THE LOUVRE PARIS, GIVING DATES OF DIFFERENT PORTIONS.

F




SCALE FOR ELEVATIONS
0 50 100 FEET

SCALE FOR BLOCK PLAN
100 0 300 FEET



182. Château de Chambord. 1500-50



The skeleton history of the building is as follows, and as shown on No. 181 F:—

Pierre Lescot (A.D. 1515–78), the first architect, commenced the work in 1540, under Italian influence. The original design only contemplated a court one-fourth the present size. The only courtyard in Italy to which we can compare that of the Louvre is the Great Hospital at Milan, commenced in 1456 by the architect Filarete. This is formed of open colonnades in two storeys, due no doubt to climatic influences, whereas the Louvre is throughout of solid walling, broken up only by pilasters, windows, and other architectural features.

The general design of the Louvre was originally intended to cover the ground of the fortified Gothic palace which it replaced. The present design consists of two storeys and an attic (No. 181 E), arranged round a courtyard, 400 feet square. The lower order is of Corinthian, the upper of Composite pilasters, and an order of pilasters of less height is provided for the attic storey.

The sculptured work by Jean Goujon (A.D. 1510–72) is especially noteworthy.

Under Henri IV. (A.D. 1589–1610), the gallery facing the Seine was erected (1595–1608) by Du Cerceau, and shows the debased inclinations of the period. Corinthian columns run through two storeys, the entablature is pierced for admission of windows, and triangular or circular pediments are placed over pilasters, without any reference to construction or fitness. The details are coarsely carved throughout.

Under Louis XIV. Perrault added (1675) the eastern façade, 600 feet in length, which consists of a solid-looking basement, above which is an open colonnade of coupled Corinthian columns.

Additional storeys were added on the north and south sides of the court to make up the necessary height to the eastern block.

Under Napoleon III. the Louvre was finished by Visconti, during 1852–1857, by the addition of the façades north and south of the Place Louis Napoleon, which form one of the most pleasing specimens of modern French art, in which a certain richness and dignity are added to the picturesqueness of the earlier periods.

**The Tuileries Palace** (A.D. 1564) was commenced for Catherine de Médici, from designs by Philibert de l'Orme (A.D. 1515–70), and the problem of effecting a proper junction between this palace and the Louvre was a crux of long standing because of the want of parallelism between them—this junction was finally effected under Napoleon III. as mentioned above. The

destruction of the Tuileries has rendered the connecting galleries architecturally ineffective.

**The Luxembourg Palace** (A.D. 1611) was erected by De Brosse for Marie de Médici of Florence, the intention being to imitate the simple and bold treatment of Florentine buildings (No. 184 G, H). In this respect note the similarity of treatment to the courtyard of the Pitti Palace at Florence.

**The Château de Maisons**, near Paris (1658), was erected by François Mansard, architect, and is shown in plan and elevation in No. 184 E, F. It is notable for the effective use of the classic orders to each storey, the mansard roofs treated separately for the pavilions and central portion, and general refinement of detail.

**The Palace at Versailles** was commenced in A.D. 1664, by Jules Hardouin Mansard (1647–1708), for Louis XIV., and is remarkable only for the uniformity and tameness of its design.

**The Château de Bury** (A.D. 1520), near Blois, is typical (No. 181 A, B) of the majority of these buildings, and may be compared with an English typical plan (Nos. 100 and 205).

By referring to No. 181 A it will be noticed that it consists of a large square court, in front of which is a screen wall, solid externally, but with a colonnade facing the court. The entrance is in the centre of this wall, and is provided with a *porte-cochère*, or carriage entrance. The screen wall is flanked by towers, circular externally, and square internally, and attached to these, and forming two sides of the court, are long wings containing the servants' apartments and offices on one side, and offices and stabling on the other. These are connected at the further end of the court with the main building, in which the family resided, and which contained the reception rooms. Behind this main building was the garden, and in the centre of one side is placed the chapel. Each of the side wings to the court was generally one storey lower than the main building, which contained the family apartments.

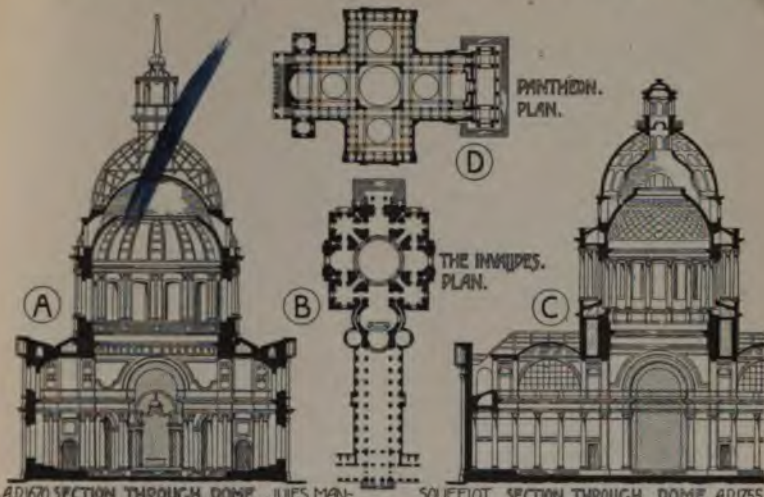
The above description applies equally to French town houses, up to the present day, with slight modifications dependent on site and local necessities. Other noteworthy examples are the **Châteaux d Azay-le-Rideau** (A.D. 1520) and **Chenonceaux** (A.D. 1515–1523).

*Note.*—In French country houses the windows face internally into a courtyard, as in the ancient Roman atrium (the courtyard responding to the atrium), whereas in English country houses *after the time of Henry VII.* the windows all face outwards, a courtyard being an exception (No. 100).



183. St. Eustache, Paris.

# FRENCH RENAISSANCE EXAMPLES II.




A.D.1670 SECTION THROUGH DOME. JULES MANSARD, ARCH^T. TO, 1706 THE INVALIDES, PARIS.

SOUFFLOT, ARCHITECT. SECTION THROUGH DOME. A.D.1755 TO 1781. THE PANTHEON, PARIS. (STGENEVIÈVE)




A.D.1658. CHATEAU DE MAISONS, près PARIS. FRANCOIS MANSARD, ARCH^T



## CHURCHES.

**St. Eustache, Paris** (A.D. 1532), **by Lemercier (No. 183).** In plan it is a typical five-aisled Gothic church, with circular apsidal end. As to the exterior, it has high roofs, a kind of Renaissance tracery to the windows, flying buttresses, pinnacles, deeply-recessed portals, and other Gothic features, clothed with Renaissance detail. The church is, in fact, laid out on Gothic lines, but clothed with detail inspired from Italian sources.

**St. Etienne du Mont, Paris** (A.D. 1517–1538). The same remarks apply as to St. Eustache; to be specially noted is the famous rood-screen, with double staircases and carved balustrading in Renaissance detail, illustrating the highly developed technical ability of the masons of the period.

**The Dome of the Invalides at Paris (1680–1706), by Jules** Hardouin Mansard, which completed the scheme of the Hôtel des Invalides commenced in 1670 by Bruant, shows no Gothic tendency, and the principles of the Italian Renaissance are paramount.

In plan it is a Greek cross, with the corners filled in so as to make it a square externally (No. 184 A, B). The dome, 92 feet in circumference, rests on eight piers. It is provided with windows in the drum, or lower portion, above which is an interior dome, with a central opening; over this comes a second or middle dome, with painted decorations, lighted by windows; lastly, over all is an external dome and lantern of wood, covered with lead.

It differs considerably from St. Paul's, London (No. 212), where an intermediate brick cone supports the external stone lantern.

**The Pantheon** (1775) at Paris was erected from the designs of Soufflot (A.D. 1713–1781). In plan (No. 184 D) it is a Greek cross. Four halls surround a central one, above which rises a dome, 69 feet in diameter. The dome is a triple one (No. 184 C), *i.e.*, one with three skins, as that of the Invalides, mentioned above, but the outer dome is of stone covered with lead. The interior has an order of Corinthian columns with an attic over. The vaulting is ingenious, and elegance has been obtained by a tenuity of support, which at one time threatened the stability of the edifice. Frescoes by the foremost French artists of to-day have been painted upon the walls. The exterior (No. 185) has a Corinthian colonnade or portico at the west end, the cornice to which is carried round the remainder of the façades, which have a blank wall treatment, the light being obtained for the nave by a clerestory over the aisles.

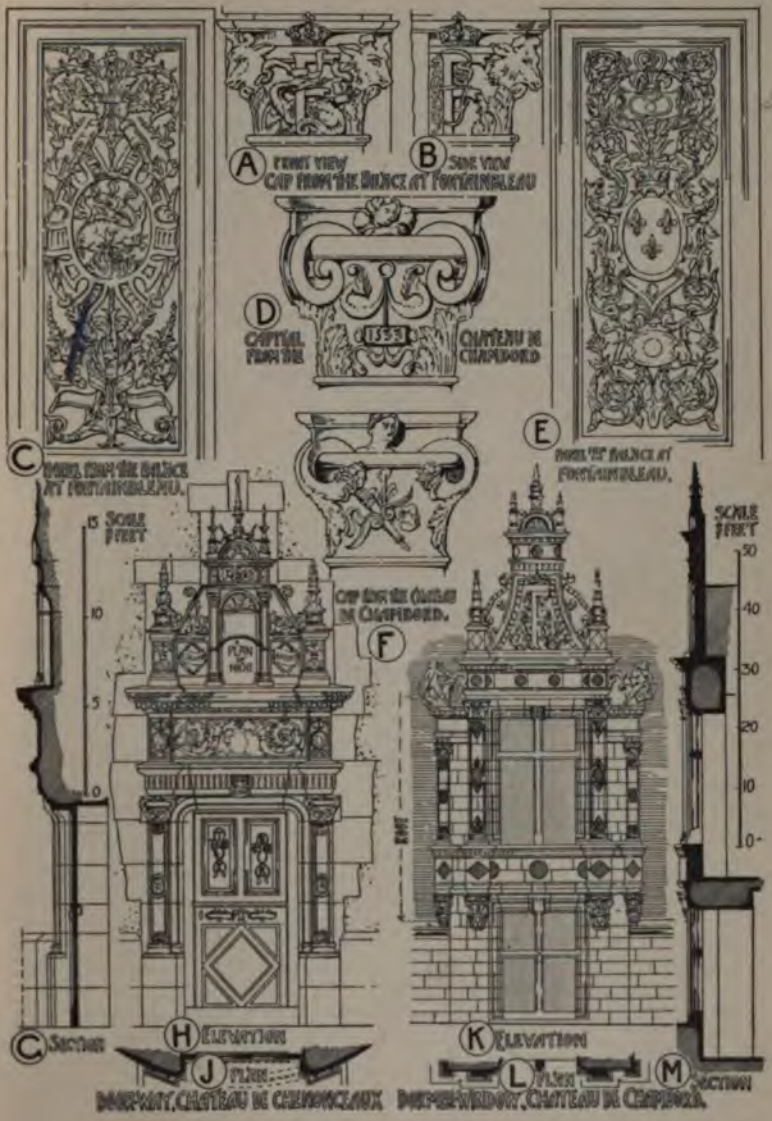
**The Madeleine** at Paris was erected by the architect Vignon



185

THE PANTHEON (S. GENEVIÉVE), PARIS. —

# FRENCH RENAISSANCE ORNAMENT I.




DORMANT, CHÂTEAU DE CHENONCEAUX DORMER-WINDOW, CHÂTEAU DE CHAMBORD.

in 1804. Externally, it shows a direct imitation of ancient Roman architecture, and is a further step towards absolute copyism. In plan it is an octastyle peripteral temple, 350 feet by 147 feet. The order has a defect, which often occurs in French work, viz., that the columns are built of small courses of stone, the joints of which confuse the lines of the fluting. The architraves also are formed into flat arches with wide joints. The interior is fine and original, the *cella*, as it would be called in classic work, being divided into an apse, half-domed, and three bays, covered by flat domes, through the eyes of which is obtained all the light for the church.

**Recent Works.**—Among later works were the **Arc de Triomphe** by Chalgrin (A.D. 1806), the **Library of S. Genévieve** by Labrouste, the **completion of the Louvre** by Visconti (see page 359), and the **Opera House**, Paris, by Garnier (A.D. 1863–1875), all being peculiarly French in treatment.

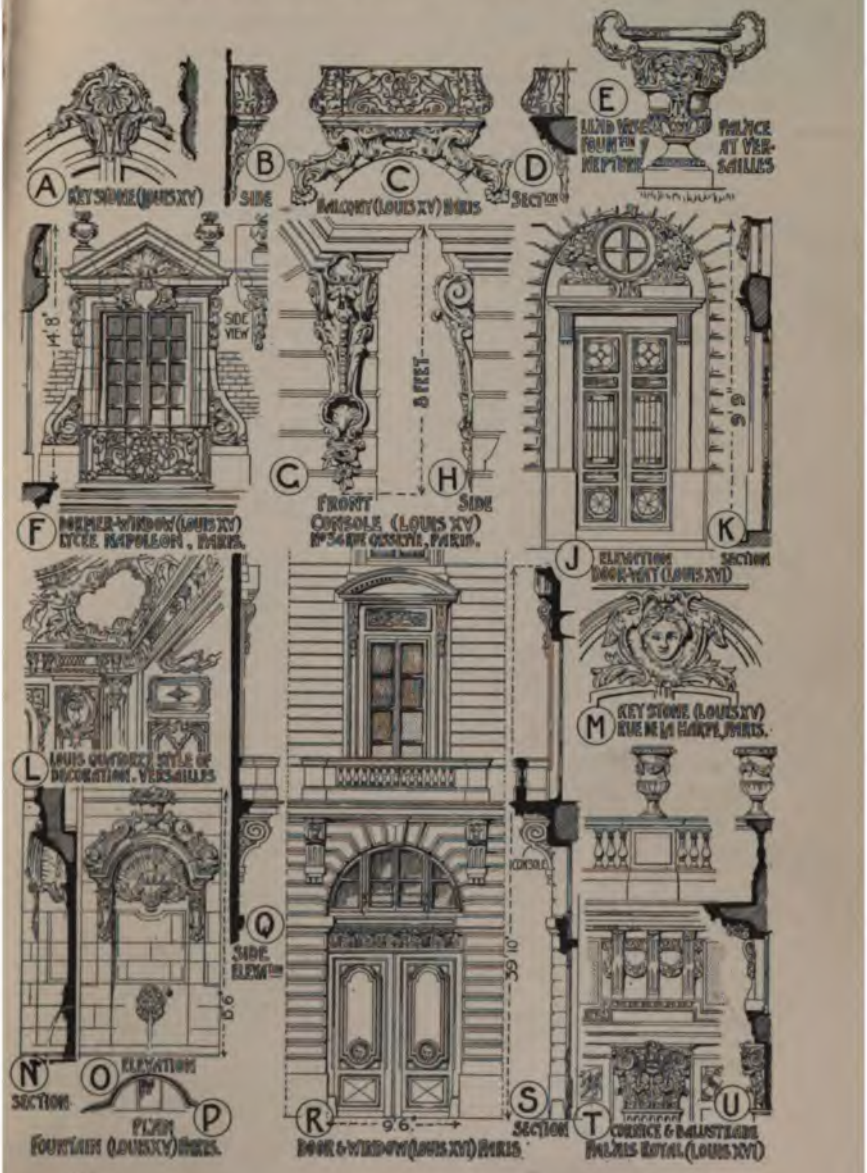
## 4. COMPARATIVE.

We now treat in a comparative manner the essential differences between Italian and French Renaissance.

It must be borne in mind that the subject is treated generally, and that the comparisons state what usually is the fact, although in many cases features might be found which do not exactly correspond with the type in every particular.

| ITALIAN RENAISSANCE. | FRENCH RENAISSANCE. |
|---|---|
| A. **Plans.**—The great feature of Italian houses is the *cortile*, or central open courtyard, which has, in all important examples, a colonnade or arcade round it. It is usual for the main wall, on the first floor, to stand on the piers or columns of this aisle, giving ampler space for the important rooms, which, it must be recalled, are in Italy, on the first floor, called the "piano nobile" (Nos. 152, 157, 159, 169 and 178). | A. **Plans.**—The castles of the previous period influenced both plan and design of the early *châteaux*. Some examples are on the site of, or are additions to, such castles. Chambord may be counted as an attempt at an ideal plan of a mansion, half castle and half palace (Nos. 181 and 182). The typical house plan (Nos. 181 A, B) in the towns is a main block, and two lower wings inclosing a court-yard cut off from the street by an open or closed screen wall. |
| B. **Walls.** — Straight façades varied by orders, arcades, or | B. **Walls.** — The gables and prominent stone dormers of the |

# FRENCH RENAISSANCE ORNAMENT II.



ITALIAN RENAISSANCE.

window-dressings are crowned by a deep cornice at the top (Nos. 152, 153, 158, 159 and 171). Attics are rare, but an open top storey "Belvedere" is a feature in houses of all classes.—Brick-work is used in large and rough masses with ashlar facing, and attention is concentrated on the window dressings or [illegible] Later examples, as at G[illegible] Vicenza, are in plaster (Nos. 177 and 178).

C. **Openings.**—Symmetry regulates the position of openings, and in late examples the use of the classic orders, rather than convenience, determines their position (Nos. 156, 157, 160, 161, 168, 176 and 177). Early designs are often astylar; the openings are the features upon which all the detail is concentrated (Nos. 152, 153 and 158). In the later buildings greater plainness prevails to give effect to the orders. In the Rococo period a return was made often to the astylar principle, when excessive prominence and exaggeration of detail marks the window dressings. As the attic is rare in Italian work, on account of the use of the great cornice, the top floor openings are often formed into a deep band, or frieze. In Genoa they are set between great consoles, that give support to the main cornice (Nos. 178 and 179).

D. **Roofs.**—Flat or low-pitched roofs a special feature, for the reason that in a narrow street high roofs could not be seen. Chimneys, if used at all, were masked and not made much of (Nos. 153 and 156) except at Venice.

FRENCH RENAISSANCE.

early period (Nos. 180, 181 and 186) give place gradually to pedimented and balustraded elevations (Nos. 185 and 187). The mansard roof lends itself to pavilions which mark the angles [illegible] the façades, while the centre [illegible]s often an attic (No. 184 E). [illegible]himneys continue to be marked [illegible]atures, though less ornamented [illegible]o. 182). Stone continues the [illegible]ief material, though red brick sometimes combined with it.

C. **Openings.**—In early designs [illegible]e mullions and transoms of the [illegible]othic method continue, though [illegible]anged in detail (Nos. 180, [illegible]82 and 186 K). Vertical coupling of windows is effectively practised, but as the orders, usually one for each storey, come increasingly into use, the horizontal lines of their entablatures prevail (No. 181). Symmetry in position is carefully attended to in late work. Mezzanine floors are much used in large mansions, with bull's-eye openings (No. 187 J, K); the main apartments will then have an upper row of windows, to preserve the range of openings externally. This treatment may be seen at Hampton Court. The attic is a specially French feature; circular windows (œil de bœuf) are often placed there also (No. 184 E).

D. **Roofs.** — High roofs are a special feature, also elaborately carved dormer windows and chimneys, to give sky-line and picturesqueness from a distance (Nos. 182 and 183). An idea of this may be seen in the School Board Offices, Victoria Embankment.

ITALIAN RENAISSANCE.

In early examples tile roofs are visible above the great cornice; the later are nearly always balustraded (No. 171 A). Domes are relied upon for sky-line in churches (Nos. 154, 160, 172 and 173). The Belvedere gives character to villas.

E. **Columns.** — Pilasters were either plain, or carved with delicate foliage (Nos. 157, 161, 165, 167 D, 175 J, 178, 179). Star-shaped sinkings uncommon. The pilaster in Italy was preferred for its own sake as an "order" when the panelled decoration naturally ceased.

An "order" is often made to include two or more storeys of a building. In churches especially a single order prevails, which was the type of Palladio (Nos. 156, 161, 162, 164, 177 and 178).

F. **Mouldings.**—The heavy cornice is provided for protection from the glare of the Italian sun (Nos. 152, 153 and 158). In early examples, strings are of slight projection, to give value to the top cornice. Where the orders are used, the details assigned to each are used in full. Mouldings are usually large but well studied in profile.

G. **Ornament.** (Nos. 155, 167, 175 and 179).—In Italian work we think of fresco and modelled plaster. In the early period the two were combined, as in the arabesques of Raphael. When separated the frescoes were often out of scale with the architecture, frequently devoid of decorative value. Compare the Vatican, and the Palazzo del Te at Mantua. Later stucco work suffers

FRENCH RENAISSANCE.

The French invention of the Mansard form preserves the roof as a feature (No. 184). As it lends itself to pavilions, square or oblong, such features acquired great prominence, and at the Louvre they are veritable towers.

E. **Columns.** — Pilasters, a decorative adjunct to Gothic features, rusticated or panelled in star-shaped patterns, but sometimes treated with foliage (No. 186 H). At Chambord (No. 186 K), the sinkings are treated with a black inlay, slates being nailed in the sunk faces of the stonework.

Each storey has in general its own "order" or column (No. 181). Columns in general do not run through two storeys. The influence of Vignola in this respect is visible.

F. **Mouldings.** — Gothic influence pervades the early work, and combinations of methods, classic and mediæval, in the profilings of mouldings are tried (No. 180). Some examples, as at Orleans, have extremely small members. French Renaissance has gradually acquired a special character by its treatment of sections.

G. **Ornament** (Nos. 186 and 187). — The wood panelling of Gothic times continues in the early period, often splendidly carved with arabesque designs, as at Blois. In later work it continues, but gradually loses the character and scale of the material. The Raphael style of decoration is introduced by Italian artists, as at Fontainebleau. The Tapestry, etc., of

ITALIAN RENAISSANCE.

in the same way—at Venice are extraordinary examples of its abuse. Interiors, generally in late work, are regulated unduly by the features of classic temple architecture, and are often in no relation to their occupants and accessories. Sculpture in later work loses touch with the decorative feeling of architect and great extravagances are petrated, as in the fountains Rome.

FRENCH RENAISSANCE.

the early period is superseded by the universal Louis XIV. style of internal wood, papier maché, and stucco decoration treated in white and gold, a style applied completely to every accessory, and which has the merit of a certain fitness and unity. Sculpre acquires an increasing imortance, and few things are etter in French modern work an the constant use of the best vailable figure sculpture in onjunction with architecture.

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188. Heidelberg Castle, The Heinrichsbau.

# GERMAN RENAISSANCE.

" My niche is not so cramped but thence
One sees the pulpit o' the epistle side,
And somewhat of the choir, those silent seats,
And up into the aëry dome, where live
The angels, and a sunbeam's sure to lurk;
And I shall fill my slab of basalt there,
And 'neath my tabernacle take my rest."—BROWNING.

## I. INFLUENCES.

**i. Geographical.**—Refer to pages 176 and 273.

**ii. Geological.**—The absence of stone, in the great alluvial plains of North Germany, influenced largely the architecture of the period; moulded and cut brickwork is used in every variety, the general scale of the detail is small, and surface patterns are formed in raised work. (See remarks on German Romanesque (page 176) and German Gothic (page 273).)

**iii. Climate.**—See under Romanesque (page 176) and Gothic (page 273.)

**iv. Religion.**—Martin Luther (1517–1546) attacks the practical abuses of certain doctrines of the Church, and brings about a revolution in the religious life of Germany (see below). Luther's translation of the Bible into High Dutch causes the latter to become the received tongue of Germans. In architecture little of great interest is produced. Old churches, with all their fittings, continued to be used, but the prominence given to preaching brought in galleries and congregational planning.

**v. Social and Political.**—The country consisted of a number of small kingdoms or principalities, each with its own capital and government. This prevented any national effort as in France, which was under one united head. In the latter part of the sixteenth century, Heidelberg was the centre of "Humanism," and the chief reformed seat of learning in Germany. The Thirty Years' War, ended by the Peace of Westphalia in A.D. 1648, should be noted.

In the eighteenth century the literary works of Winckelmann, Goethe and others aroused interest in Greek architecture.

**vi. Historical.**—Charles V. succeeded to all the possessions of the Houses of Castile, Aragon, Burgundy, and the Low Countries, and this marks the period of the German Renaissance. In 1516 he obtained the two Sicilies, and in 1519 he was elected to the Empire, on the death of Maximilian, becoming the most powerful emperor since Charlemagne.

In 1517 Luther nailed up his theses at Wittenberg, marking the commencement of the Reformation, which was aided largely by the revival of learning. In 1520 he defied the Pope, by publicly burning the bull of excommunication put forth against him by Pope Leo X. The Diet of Spires, 1529, passed a decree against all ecclesiastical changes, against which Luther and the princes who followed him protested, hence the name "Protestant." This leads in 1530 to the Confession of Augsburg and the confederation of Protestant princes and cities, for mutual defence, called the Imalcaldic League. The war between the Emperor Charles V. and the Catholics against the Protestant princes extended from 1546–1555, when the Peace of Augsburg was concluded. This put religion on terms of equality in each German state. The Thirty Years' War commenced in 1618, and was carried on in Germany between the Catholic and Protestant princes. Other princes, such as Christian IV. of Denmark and Gustavus Adolphus of Sweden, joined in these wars on the Protestant side, under the Elector Palatine Frederick, who had married a daughter of James I. of England. Hence many Englishmen and Scotchmen served in these wars. France joined in the war for her own aggrandizement, under Cardinals Richelieu and Mazarin. The Peace of Westphalia, 1648, provided for religious equality in each state. The war had, however, utterly ruined Germany, and caused France to become the leading nation in Europe.

## 2. ARCHITECTURAL CHARACTER.

Refer to Renaissance Architecture in Europe (page 306).

The Renaissance style in Germany is chiefly remarkable for picturesqueness and variety of grouping, and quaintness and grotesqueness of ornament, due in a large measure to the traditions of the preceding style.

Renaissance architecture was introduced from France, about the middle of the sixteenth century, while the Henri IV. style was in vogue, which may account for a good deal of the grotesqueness and crudity the style possesses in Germany.



189. The Rathhaus, Cologne.

German Renaissance differs from French in lack of refinement, and in a general heaviness and whimsicality of treatment, while it resembles in some respects our own Elizabethan. It forms, in fact, a connecting link between Elizabethan architecture and French Renaissance of the time of Henri IV.

Examples are mostly found in towns, whereas in France they are principally found in the country.

The later period, which commenced at the beginning of the nineteenth century, has been called the "Revival," and consisted in the adoption of classic forms *in toto*, without reference to their applicability, or appropriateness in any way. This movement was chiefly confined to Munich, Berlin, and Dresden.

## 3. EXAMPLES.

### SECULAR ARCHITECTURE.

The **Heinrichsbau** (1556), forming the internal courtyard (No. 188) of the Castle of **Heidelberg**, and the **Freidrichsbau** (A.D. 1601), are the most famous examples in the style, and have elaborately-carved string courses, with an order and its entablature to each storey, and classical details surrounding the windows. Symbolical statuary is prominently introduced (No. 192 A, B, C), and the design suffers from over-ornamentation.

**The Cloth Hall at Brunswick** is a well-known example; the three-quarter columns, with pedestals and entablatures, marking each floor, are a characteristic feature; also the immense gable in four storeys, each being provided with an order of vase-shaped pilasters, as in Elizabethan work. The scrolls by which the stages of the gable are contracted are also to be noticed.

**Nuremberg** and **Hildesheim** are also rich in domestic examples of the period.

The **Rathaus** (Town Hall) **at Cologne** has a fine two-storeyed porch (No. 189), erected in 1571, in a purer style. It consists of semicircular arcading, with detached Corinthian columns, and a stone vaulted roof. It will be noticed that the arches on the first floor are pointed, and pointed vaulting is also adopted.

The **Town Hall at Lemgo**, with mullioned windows and shaped gables (No. 190 A), and the **Town Hall at Solothurn** (No. 190 B), with pilasters and entablature to each storey, are characteristic.

**The Pellerhaus, Nuremberg** (No. 191), is an example of rich domestic architecture, and shows also the richly-treated stepped gables, so characteristic of the period.

# GERMAN RENAISSANCE EXAMPLES




FRONT PART OF TOWN HALL, LEMGO



B TOWN HALL, SOLOTHURN
FAÇADE, MIDDLE OF 16TH CENTURY

SCALE OF FEET




WELL HEAD 1579, ORB-EHNHEIM

SCALE OF FEET

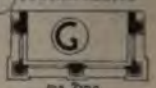



ARCADE FROM HOUSE OF CRANACH, WEIMAR 1526

SCALE OF FEET



DORMER WINDOW, NUREMBERG




PLAN

SCALE OF FEET



191. The Pellerhaus, Nuremberg.



**The Zwinger Palace at Dresden** (1711), the **Rathaus at Leipsig** (1556), and the **Castle at Stuttgart** (1553) are amongst other well-known examples.

In connection with the **Revival** in Munich, *Klenze* (A.D. 1784–1864), the architect, is responsible for the Glyptotek, the Pinacothek, and the Walhalla. At Berlin, the **Brandenburg Gate** (A.D. 1784), is well known, and the celebrated architect *Schinkel* (1781–1841) erected the New Theatre, the Museum, and the Polytechnic School. In all of these buildings the great idea has been to copy classical forms and details, applying them to modern buildings.

In Vienna the **Parliament House** by Hansen (A.D. 1843) is an imposing edifice.

### ECCLESIASTICAL ARCHITECTURE.

The new churches were few and insignificant, an abundant supply for all practical needs remaining from the mediæval period.

**St. Michael's Church at Munich** (A.D. 1582) and the **Frauenkirche at Dresden** (1726–1745) are among the best known, and exhibit a desire for wide, open spaces. The latter especially is notable, being 140 feet square on plan, and covered with a dome 75 feet in diameter, resting on eight piers. It is constructed internally and externally of stone.

## 4. COMPARATIVE.

A. **Plans.**—The French method of an internal courtyard is adopted. In towns, many-storied houses were erected with great roofs, continuing the practice of the mediæval period.

B. **Walls.**—Gables assume fantastic shapes (Nos. 190 A and 192 E); richness is produced by the application of columnar features as ornament (No. 191). Brick and stone are used singly and in combination.

C. **Openings.**—Oriel windows of various shapes and design are plentifully used, both in the façade itself (No. 191) and on the angles of buildings. Such a feature did not appear at Rome, Florence, or Venice during Renaissance times.

Windows are large, mullioned (No. 190 A), and crowned by grotesque, or scrolly pediments (No. 192 G). In later work the usual classic features are adopted (Nos. 190 E and 192 A, B, C, J).

D. **Roofs.**—The large roofs in the town houses, containing many storeys (Nos. 189 and 191), are a prominent feature in this, as in the Gothic, period. Such roofs served a useful purpose,

# ·GERMAN·RENAISSANCE·ORNAMENT·



being used as drying-roofs for the large and frequent wash. There are two methods of treatment: (*a*) by making the ridge parallel to the street front, as we generally find carried out in Nuremberg; (*b*) the other consists in making the ridge run at right angles to the street, as adopted in Landshut, in the south-east of Germany, and many other places. The Pellerhaus, Nuremberg (No. 191), shows a combination of the two methods.

It will be seen that the first allows for the display of many tiers of dormer windows (No. 190 F, G), rising one above the other, and the second method permits the use of fantastically-shaped gables (No. 190 A).

E. **Columns.**—The orders are freely employed in a licentious manner, as decorative adjuncts (Nos. 188–192), the storeys being marked by rich cornices; the columns and pilasters are richly carved, and are often supported on corbels.

F. **Mouldings.**—Boldness and vigour must be set against the lack of refinement and purity in detail. Though Renaissance details are affected by the preceding work, the worst features of the last age of the Gothic style, such as interpenetration, are given up.

G. **Ornament** (Nos. 190 and 192).—Sculpture is best seen in the native grotesques (No. 192 D, F, H), wherein much fancy is displayed, and fine specimens are at Heidelberg (No. 192 A, B, C). The imitations of Italian carved pilasters are inferior, as at Heidelberg.

The late glasswork is interesting, but the art soon died out.

Fresco work was attempted during the revival at the beginning of the century by the Munich school.

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# BELGIAN AND DUTCH RENAISSANCE.

"Many scarlet bricks there were
In its walls, and old grey stone
* * * * * *
On the bricks the green moss grew,
Yellow lichen on the stone.
* * * * * *
Deep green water filled the moat,
Each side had a red brick lip
Green and mossy with the drip of dew and rain."—MORRIS.

## 1. INFLUENCES.

**i. Geographical.**—See *ante*, page 268.

**ii. Geological.**—Also refer back (page 268). Note that brick is the characteristic material of this phase of the Renaissance.

**iii. Climate.**—See *ante*, page 268.

**iv. Religion.**—The persecutions begun under Charles V., but most severe under the Duke of Alva, viceroy of Philip II. of Spain, led to a revolt in 1568 which lasted till 1609. The Belgians, mainly Catholics, however, fell back to Spain, under the able rule of the Duke of Parma, but the Dutch, strongly Protestant, constituted the *United Provinces*, and finally under a republic became a great power. Their architectural expression was limited; the barn-like churches developed no features of great interest. The prominence given to preaching, and the demand for greater comfort regulated planning, but, whether for lack of interest or funds, nothing on a large scale was attempted.

**v. Social and Political.**—In Holland the character of the Dutch is shown in their buildings, which are in general honest, matter-of-fact, and unimaginative. The gain of trade and riches, in consequence of the discovery of the New World by Columbus, was not, however, mirrored by the erection of monumental structures. Their daring and activity in trade

made them one of the chief powers of Europe during the seventeenth century. Their extensive colonies gradually passed over to the English.

**vi. Historical.**—The Spanish occupation of the Netherlands, the consequent influence of Spanish art in the sixteenth century, together with the loss of liberty under Charles V., and the ultimate expulsion of the Spaniards in 1648, must all be taken into account when dealing with this subject. Belgium, as a Catholic country and a Spanish province from A.D. 1506–1712, remained under the rule of Spain, when Holland freed herself under the House of Orange.

## 2. ARCHITECTURAL CHARACTER.

Refer to Renaissance in Europe (page 306).

Belgian examples are wild, licentious, and picturesque, while sobriety, amounting often to dullness, is the character of Holland. Home comforts were studied, and the details of internal work, including furniture, were perfected. Brick received its due prominence in this domestic style.

## 3. EXAMPLES.

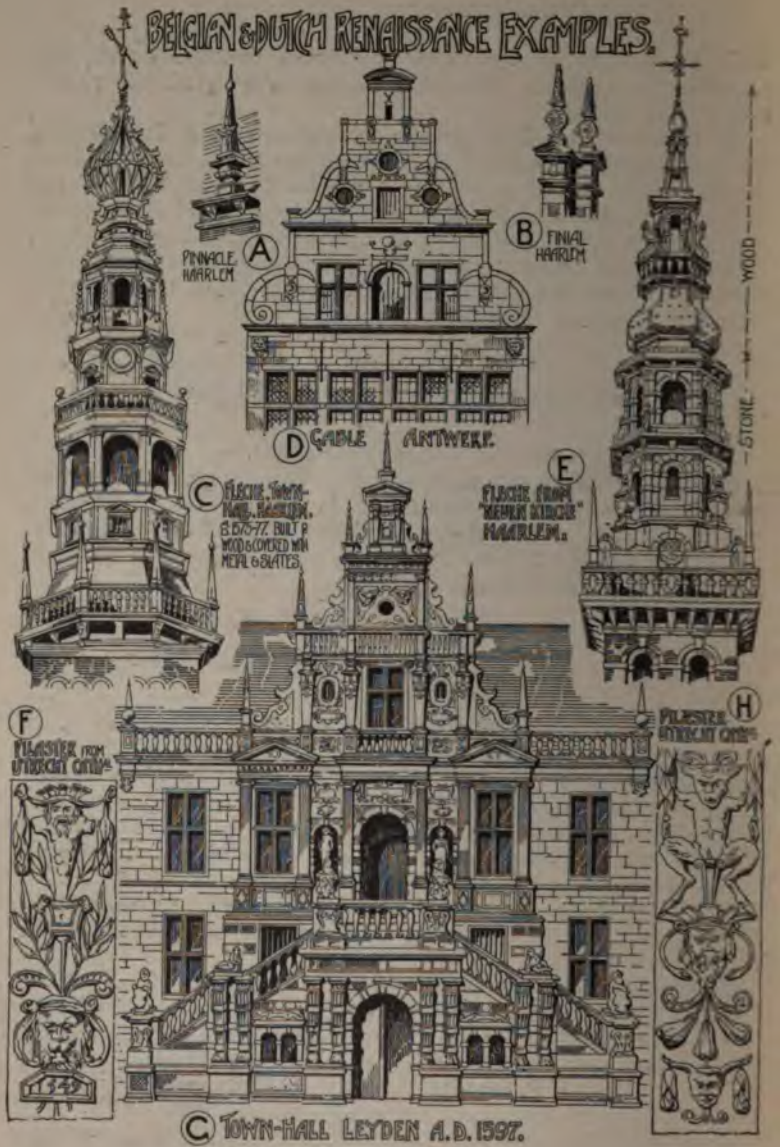
**The Town Hall at Antwerp**, erected by de Vriendt in A.D. 1565 (No. 194), is one of the most important buildings. The richness and prosperity of this particular city contributed not a little to the execution of this fine work. An order, or row of columns, is given to each storey, mullioned windows and a high-pitched roof with dormer windows are used, and the whole design is placed on a sturdy rusticated basement.

The **Hotel du Saumon**, Malines, the **Ancien Greffe** at Bruges and the **Archbishop's Palace at Liege** are other examples.

**The Stadthaus at Amsterdam** is certainly not worthy of being mentioned except from its great size.

The **Town Hall of the Hague** (A.D. 1565), and **Leyden Town Hall** (A.D. 1579) (No. 193 G) are other examples. Among recent works, the **Palais de Justice at Brussels**, in the Neo-Grec style, by Polaert, is an imposing edifice.

**Domestic Architecture.**—If we are disappointed in any large or important works erected during the Renaissance period in north-west Europe, we are amply repaid by studying much of


BELGIAN & DUTCH RENAISSANCE EXAMPLES.
A
PINNACLE HAARLEM
B
FINIAL HAARLEM
D
GABLE ANTWERP.
C
FLECHE TOWN-HALL, HAARLEM. A.D. 1577. BUILT OF WOOD & COVERED WITH METAL & SLATES.
E
FLECHE FROM "GROTEN KERCKE" HAARLEM.
F
PILASTER FROM UTRECHT CATH.
H
PILASTER UTRECHT CATH.
STONE
WOOD
C TOWN-HALL LEYDEN A.D. 1597.



194. THE TOWN HALL, ANTWERP. Renn 1560

the domestic and civic architecture, for while wandering through the streets of these old-world towns we meet with charming specimens of street architecture, executed in bright red brick, with occasional stone courses and dressings, with the further ornament of gracefully-designed iron ties (No. 195 D). In the design of their gables, much originality of treatment is found (No. 193 D, G), leaning rather towards the work found in some of the old German towns, and often verging on the grotesque, but at the same time thoroughly suited to the brick material, and possessing a certain characteristic quaintness of its own.

Many of these street fronts are good examples of the treatment of large window spaces.

In Holland, especially, these quaint buildings, rising very often from the sides of canals, and of varied colours, group most harmoniously, and form fascinating studies for water-colour sketching.

## 4. COMPARATIVE.

A. **Plans.**—The great development of domestic Gothic is the groundwork of the achievements of the Renaissance in this country. It was in the modifications of detail that the influence of the latter was felt, Italian forms, generally much corrupted, being gradually adopted.

B. **Walls.**—Gables of curly outline, grotesque, picturesque, and rococo in character, are crowded together in streets and squares, whose general effect and grouping must be enjoyed, without too much inquiry into their *rationale* or detail (Nos. 193 D, E, G and 195 D).

C. **Openings.**—Are numerous and crowded, in continuation of the Gothic practice (No. 193 D). The orders take the place of the niches, statuary, and traceried panelling, that surround the windows of the previous period (Nos. 193 and 195 C, G).

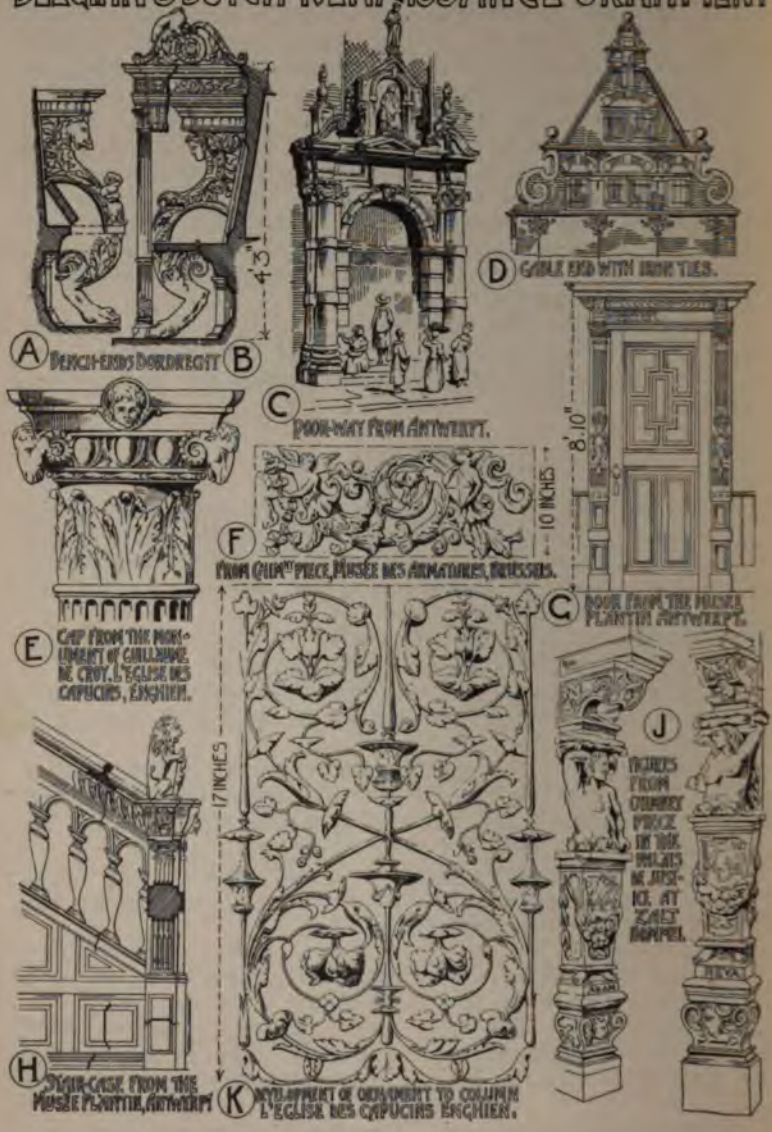
D. **Roofs.**—The high-pitched forms continue long in favour, as well as the dormers, towers of many stages (No. 193 C, E), and visible chimney stacks (Nos. 193 and 194).

E. **Columns.**—The orders are used as decorative features, being heavily panelled, rusticated, and otherwise treated in a licentious and grotesque fashion (Nos. 193 G and 195 C, G, J).

F. **Mouldings.**—The same defect, that of coarseness, noted under Gothic, continues in this period. The further divorce of detail from construction and material rather accentuates the evil.

G. **Ornament** (No. 195).—Carving of vigorous grotesques occupies any vacant panel or space (Nos. 193 F, H and 195 K), the

# BELGIAN & DUTCH RENAISSANCE ORNAMENT



*motifs* being usually Italian, "corrupted" or "original," according to the point of view. The woodwork (No. 195 A, B, F, H), and stained glass, of this age is especially worthy of note.

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# SPANISH RENAISSANCE.

"For God, the universal Architect,
It had been as easy to erect
A Louvre or Escurial, or a tower
That might with Heaven communication hold,
As Babel vainly thought to do of old;
He wanted not the skill or power."—COWLEY.

## I. INFLUENCES.

i. **Geographical.**—The position and power of Spain, arising from the discovery of the new world, combined with the vast hereditary and conquered possessions of the Spanish monarchy, made her the leading nation in Europe.

ii. **Geological.**—See *ante*, page 295. The presence of very pure iron ore, in the northern mountains, facilitated the development of decorative ironwork. Granite is much used, and brick only in certain parts.

iii. **Climate.**—See *ante*, page 295.

iv. **Religion.**—The Reformation obtained no hold whatever in Spain. Under the Gothic period, we have pointed out the religious aspect of the great struggle with the Moors, and the national character of the church will be understood. The counter reformation found its motive force in the Jesuit order, founded by a Spaniard, Ignatius Loyola.

v. **Social and Political.**—The people were a mixed population, in which the Goths of Northern Europe and the Moors of North Africa form the most important elements.

From the latter part of the fifteenth century the power of Spain gradually increased, until she became the chief power of Europe. Absolute despotism was the policy of Philip II., Jews and heretics being persistently persecuted. Under Philip III. the Moriscos were driven out of the country; this proved a great loss to Southern Spain, which by their hard work had been made to flourish.



196. Town Hall, Seville.

**vi. Historical.**—The accession of Ferdinand and Isabella to the throne, and the fall of Granada in A.D. 1492, mark the consolidation of Spain, the expulsion of the Moors, and the beginning of the Spanish Renaissance.

The great dominions of Spain were due to a succession of marriages, Charles V. reigning over Spain, the Netherlands, Sardinia, Sicily, and Naples, Germany, and Austria. This empire was held together by his skill in government, and by the excellence of the Spanish army, the infantry being the finest at that time in Europe. Philip II. checked the power of the Turks by winning the great naval battle of Lepanto, 1571. His harsh and despotic rule, however, alienated the Netherlands, and the expedition against England ended in the defeat of the Armada in 1588. Provinces were gradually lost, and Spain as a power ceased to exist. Napoleon's invasion, at the commencement of the nineteenth century, led to an outburst of national resistance, aided by the English. Many revolutions followed, but progress, as understood by other nations, has been slow.

## 2. ARCHITECTURAL CHARACTER.

Refer to Renaissance Architecture in Europe (page 306).

In the early period, Renaissance details, grafted on to Gothic forms, and influenced to some extent by the exuberant fancy of the Moorish work, produced a style as rich and poetic, however careless and incorrect, as any other of the numerous phases of the Renaissance in Europe.

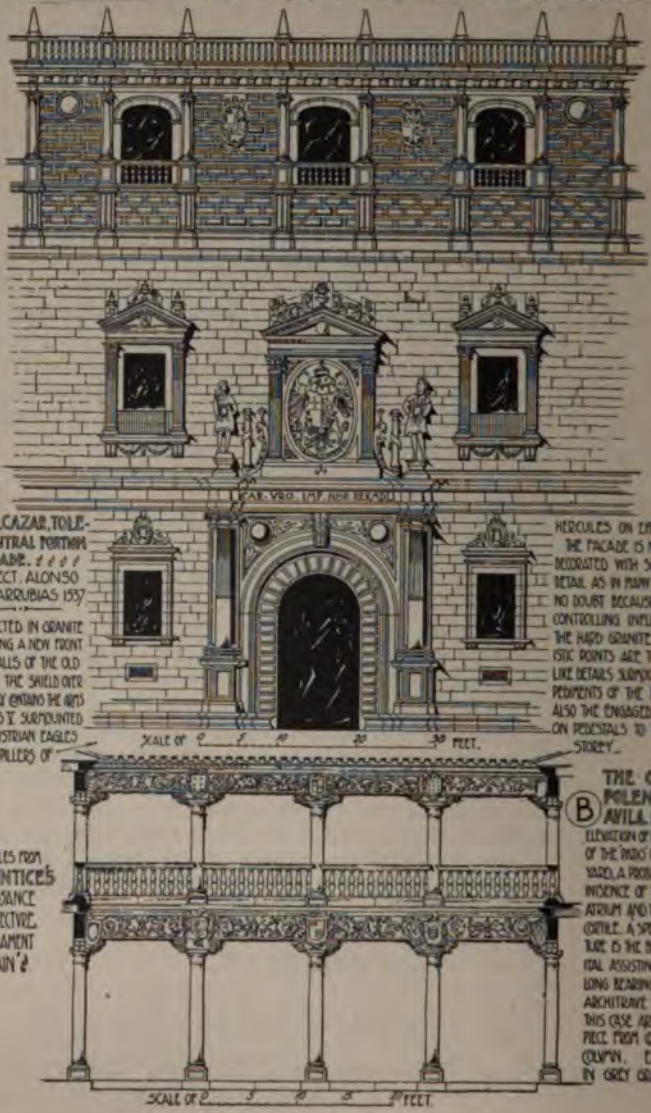
The style of the early period, from being minute in detail, is called "Plateresque," from its likeness to silversmith's work, and lasted to the abdication of Charles V. in 1556. The middle period became more classical, as was the case in Europe generally, and the chief expositor was the architect Herrera (d. 1597), a pupil of Michael Angelo. In the late period, the style fell away from true principles, becoming imbued with the Rococo innovations.

## 3. EXAMPLES.

### SECULAR ARCHITECTURE.

**S. Domingo at Salamanca** and **Malaga Cathedral** are among the most important works, and well illustrate the peculiar richness of the Plateresque period and the lace-like character of the detail, derived from Moorish influence. **The University at**

# SPANISH RENAISSANCE EXAMPLES.



(A)

THE ALCAZAR, TOLEDO. CENTRAL PORTION OF FACADE. 1551 ARCHITECT. ALONSO DE COVARRUBIAS 1537

CONSTRUCTED IN GRANITE AND FORMING A NEW FRONT TO THE WALLS OF THE OLD BUILDING. THE SHIELD OVER THE DOORWAY CONTAINS THE ARMS OF CHARLES V. SURMOUNTED BY THE AUSTRIAN EAGLES WITH THE PILLERS OF HERCULES ON EITHER SIDE. THE FACADE IS NOT RICHLY DECORATED WITH SCULPTURED DETAIL AS IN MANY EXAMPLES NO DOUBT BECAUSE OF THE CONTROLLING INFLUENCE OF THE HARD GRANITE. CHARACTERISTIC POINTS ARE THE WAVE LIKE DETAILS SURROUNDING THE PEDIMENTS OF THE 1ST STOREY ALSO THE ENGAGED COLUMNS ON PEDESTALS TO THE 1ST STOREY.

SCALE OF 0 5 10 20 30 FEET.

EXAMPLES FROM A.H. PRENTICE'S 'RENAISSANCE ARCHITECTURE & ORNAMENT IN SPAIN'

(B)

THE CASA POLENTINA, AVILA. 1517 (?)

ELEVATION OF ONE SIDE OF THE PATIO OR QUADRANGLE. A PROBABLE REMINISCENCE OF THE ROMAN ATRIUM AND THE ITALIAN CORTILE. A SPECIAL FEATURE IS THE BRACKET OR TAL ASSISTING IN THE LONG BEARINGS OF THE ARCHITRAVE WHICH IN THIS CASE ARE IN ONE PIECE FROM COLUMN TO COLUMN. EXECUTED IN GREY GRANITE.

SCALE OF 0 5 10 20 30 FEET.

**Alcala** (A.D. 1500–1517) has an open arcaded storey under the roof, a feature specially characteristic of the early period.

The **Archbishop's Palace** at **Alcala** is also noteworthy. The "bracket" capitals, on the first floor in the courtyard, are undoubtedly of wooden origin, their use being to decrease the long bearing of the architrave. This is well shown in the court-yard of the Casa Mivanda at Burgos (No. 198).

**The Town Hall at Seville** (No. 196) is generally regarded as the best example of a municipal building in Spain. It has been considerably extended at later periods, but much of the stonework has remained uncarved.

The **Alcazar at Toledo**, an ancient square castle of Moorish-Gothic architecture, has one façade in the early Renaissance of Charles V. (No. 197 A), while the interior has been converted into a two-storied Italian cortile. The arcades rest upon the capitals of the columns of two orders, of one storey each. At the far end is a grand staircase, 100 feet by 50 feet, the flights being of great width. Off the half landing is a grand square two-storied chapel. The whole of this severe and monumental work is executed in granite. The back elevation is an early example of a many-storied building in the classical style.

The **Palace of Charles V. at Granada**, adjoining the "Alhambra," erected in 1527 by Machuca and Berruguete, is an important specimen. In plan it is a square, 205 feet each way, inclosing an open circular court 100 feet in diameter. The external façade is two storeys in height, the lower a rusticated basement, the upper treated with Ionic columns. Both basement and upper order have bull's-eye windows above the lower openings, so that mezzanines could be lighted where required. The circular internal elevation is an open colonnade in two storeys, with Doric order on the lower, and Ionic order, of small height, to the first storey.

It is built in a golden-coloured stone, the central feature of the two visible façades being in coloured marbles; the sculpture is by Berruguete, and the whole design, which is of the Bramante school, is the purest example of Renaissance in Spain. The palace was never roofed in or occupied.

**The Palace of the Escurial** (No. 199 C), situated thirty-two miles from Madrid, was commenced by Philip II., and in 1567 Herrera was appointed architect. It is a group of buildings on a site 640 feet long by 580 feet wide, and consists of a *monastery*, a *college*, a *palace*, and a *church*, all grouped into one design. The grand entrance, in the centre of the long façade, leads into an atrium, to the right of which is the college with its four courts, 60 feet square, surrounded with three storeys of arcades; beyond

is the great court of the college. On the left of the atrium is the monastery, with three courts 60 feet square, and beyond is the great court of the palace. Immediately in front, at the end of the atrium, is the church, lying between the courts of the palace and the college. Behind the church, which is 320 feet by 200 feet, are the state apartments of the palace.

The plan of the church is Italian in origin, following somewhat the type of the Carignano Church at Genoa. The detail is classical, and shows that Herrera studied to some purpose in Italy. The principal Spanish feature is the placing of the choir on a vault, over the lengthened western arm of the cross, beneath which is a domed vestibule—consequently the church interior is, in effect, a Greek cross on plan.

In general grouping nothing could be finer than the dome as a centre, flanked by the two towers and surrounded by the great mass of building, the whole being silhouetted against a background of mountains. Moreover, the palace proper at the east end is only an annex, and does not conflict with the church, as the Vatican does with St. Peter's.

The entire structure, internally and externally, is built in granite of a gray colour, with a slight yellow tinge, which material may have influenced the design. It may be said that the taste of Philip II. and Herrera would have produced something equally plain in any material, whether granite or not, but at least the design may be said to be suited to the material.

The masonry is excellent, and in blocks of great size, the architraves of doors being 10 to 12 feet high, in one stone. The exterior façades are everywhere five storeys in height, the windows square-headed, without dressings of any sort, and without any attempt at grouping, so that they are inferior in effect to the façade at the Alcazar, described above.

As an interior, however, it is most impressive, being of granite with suitable detail, and having the vaults only coloured. It has a magnificent reredos in such quietly-toned marbles that one hardly notices how rich it is. The architectural character is so restrained that the structure looks nothing at a mere cursory glance.

## ECCLESIASTICAL ARCHITECTURE.

**Burgos Cathedral** has a magnificent dome (No. 146) belonging to the early period (1507), and is an example of the wealth of detail so characteristic of the style.

**Granada Cathedral** (A.D. 1529), by Diego Siloe, is a grand example of the Renaissance churches of Southern Spain. It is a



198. Burgos.

'Patio' of the House of Mivanda, showing the Bracket Capital.

translation of Seville Cathedral into the Renaissance style, the Gothic system being followed, but the orders applied to the piers carrying the vaulting. The lofty circular choir is domed on radiating supports, ingeniously disposed, constituting a fresh and original departure. The general effect of the interior is powerful, but unduly sensational.

**Valladolid Cathedral,** by Herrera, is more distinctively classic, but remains incomplete. The west façade is imposing, but wholly out of scale, and in the interior the execution and detail are incredibly rude.

The **steeples** which are placed alongside the cathedrals at *Granada*, *Santiago*, *Malaga*, and *Carmona* are examples of a class of structure in which Spain is especially rich, and which are generally treated in a most pleasing manner.

**The Rococo Style in Spain.**—In the seventeenth century the Spaniards, revolting from the correct and cold formalities of the school of Herrera, reached the opposite extreme, and erected buildings in which fantastic forms are employed for their own sake, without reference either to good taste or fitness. The style goes by a name as unpronounceable as the result is unfortunate. It is called Churrigueresque, after the name of its chief practitioner.

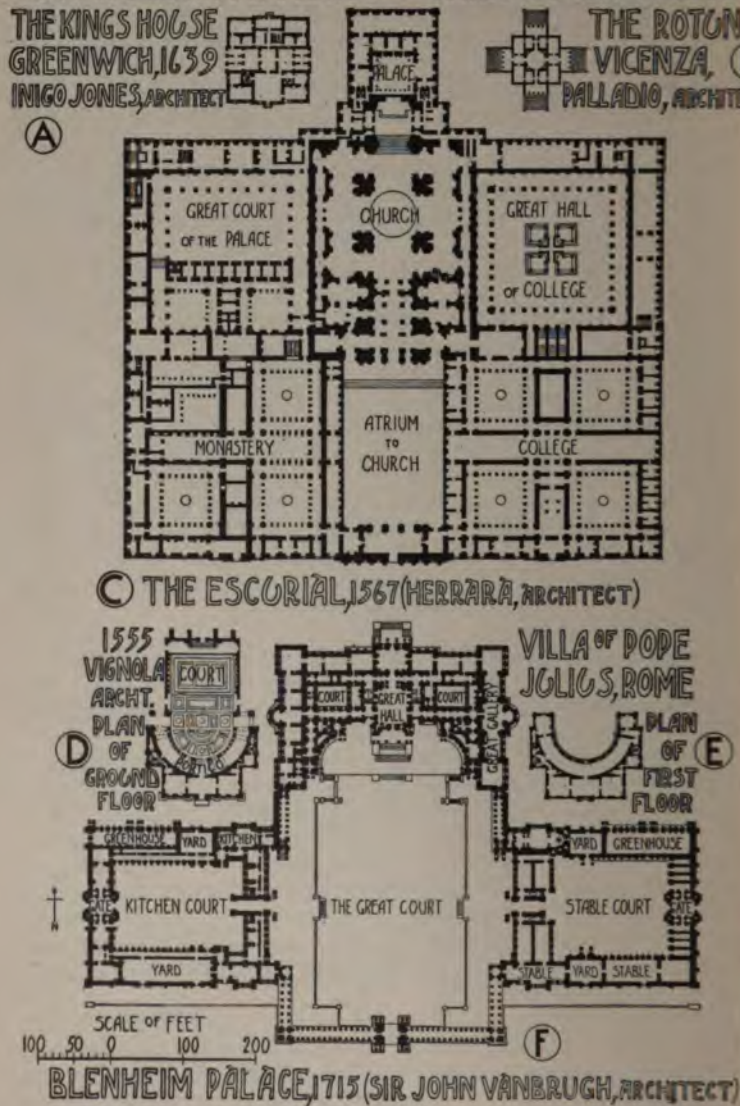
## 4. COMPARATIVE.

A. **Plans.**—In churches wide naves are usual, sometimes without any aisles. Lanterns or domes are common at the crossing, the transepts and apsidal chancel, being usually shallow, the ritual choir remaining west of the transepts.

In houses the *Patio* (Nos. 197 B and 198), or Spanish version of the Roman atrium, and Italian cortile, is universal. It has even an added seclusion, which seems due to Moorish influence. The streets of Toledo present walls all but blank (No. 197 A), through whose doorways, when open, but a glimpse of the *patio* only can be obtained. Staircases are often large, as in the Burgos transept and the Casa Infanta at Saragossa, in which last the *patio*, and staircase opening from it, are as picturesque and fanciful as any in Spain. Largeness of scale characterizes palaces as well as churches.

B. **Walls.**—Brickwork is used in large, rough, but effective masses, as at Saragossa. Fine stonework is used in other places, and also granite, as at the Escurial and Madrid. Gables are rarely or never found; a special feature is an eaves arcade (No. 197), forming an *open top storey*, and on this feature all the decoration is *concentrated*, leaving blank walls below,

# COMPARATIVE PLANS OF VARIOUS BUILDINGS



relieved by an elaborate doorway. Arabesque pierced parapets or crestings are common in the early work, as the *Casa Monterey* at Salamanca. At Saragossa, the great cornices of the brick palaces are of wood, elaborately detailed.

C. **Openings.**—Doorways are emphasized. At Toledo they alone relieve the blank, narrow, walled streets (No. 197 A). A special largeness of scale is to be noted (No. 200 A), perhaps due to the importance of a gateway in the East, owing to Saracenic influence.

Windows are treated with well-designed grilles, and their dressings in stonework are frame-like in character (Nos. 196, 197 A and 200 D). Small orders, resting on corbels, carry a much ornamented head (No. 200 D), while the sill is often absent or untreated.

D. **Roofs.**—Not emphasized. Generally flat or of low pitch. Towers, however, have spires of slate or leadwork of fanciful outline, even in designs of the severe classic period. The spire of St. Martin's, Ludgate, may be compared with the angle towers of the Escurial. Internally the great saloons of the early period are remarkable, the walls, for ten or more feet in height, being plain stonework, to be hung with draperies. A light-arcaded gallery of wood rests upon a great projecting wooden cornice, affording a passage in front of the windows in the main wall. This arcade reaches up to the flat wooden ceiling, framed in coffers, and detailed in a style that is suggestive of Arab influence.

E. **Columns.**—In the early style, the orders are used in slight and playful decorative forms (Nos. 196, 197 and 198); the baluster shape, or shafts of an outline suggestive of the forms due to wood turned in a lathe, are used abundantly, being decorated in low relief. In the use of columns with arcades, sometimes very high pedestals are used, and the arches spring at the base line of the column. In the later work, correctness prevails until the outbreak of the Rococo.

F. **Mouldings.**—In early work, much refinement (No. 200) is mingled with forms due to Gothic and Moorish influences. A special feature is the bracket capital (Nos. 197 B and 198), by which the long bearings of stone architraves are relieved by corbels on either side, combined in treatment with the cap itself.

In the middle period, the great number of breaks in the entablatures which were mitred round columns is noteworthy (Nos. 196 and 209). In church interiors quite a special effect is produced by the flutter of the many mitres.

G. **Ornament** (No. 200).—Sculpture varies much in quality. Berruguete is the Donatello of the Spanish Renaissance, but his

# SPANISH RENAISSANCE ORNAMENT.

EXAMPLES FROM AN APPRENTICED RENAISSANCE ARCHITECTURE & ORNAMENT IN SPAIN.




SCALE OF FEET 0 1 2 3 4 5 10

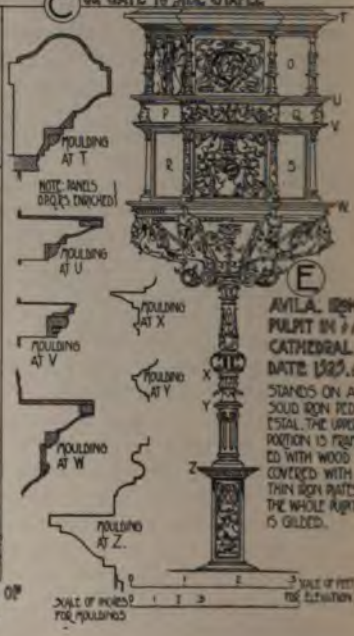
SIGÜENZA CATHEDRAL, DOOR FROM CLOISTERS. 1507




ALCALA DE HENARES. WINDOW FROM FACADE OF THE UNIVERSITY. RODRIGO GIL ARCHITECT DATE 1553.




CUENCA CATHEDRAL. IRON SCREEN OR GATE TO SIDE CHAPEL.




AVILA. IRON PULPIT IN CATHEDRAL. DATE 1525.

STANDS ON A SOLID IRON PEDESTAL. THE UPPER PORTION IS FRAMED WITH WOOD COVERED WITH THIN IRON PLATES. THE WHOLE RIGHT IS GILDED.

figures often are wanting in decorative treatment. Expression is emphasized unduly, and violence of action is not uncommon (No. 196).

The painting on the sculpture is usually crude and realistic. The great *retablos* of alabaster, stone, or wood are the finest decorative feature of the churches. The figures are often life-size, and the architectural detail is very elaborate. The iron *Rejas*, or grilles, are also a source of effect (No. 200 A, B, D).

Tile work is excellent in Southern Spain. Stained glass is apt to be loaded in colour and over vivid. The drawing is frequently clumsy, Flemish influence, not of the best kind, being apparent. The fresco work of the Escurial is merely late Italian. The canvases of Murillo at Madrid and at the church at Seville, though large in scale, have the character of paintings in oil. In the accessory arts, armour design was carried to great perfection by the Spaniards, and the iron pulpit (No. 200 E) is an example of the elaborate metal work of the period.

The subject of the Renaissance in Spain has been well taken up by various travelling students of late years, and the following books contain interesting examples.

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201.

# ENGLISH RENAISSANCE.

"St. Paul's high dome amid her vassal bands
Of neighbouring spires, a regal chieftain stands.
And over fields of ridgy roofs appear,
With distance softly tinted, side by side
In kindred grace, like twain of sisters dear,
The towers of Westminster, her abbey's pride;
While far beyond the hills of Surrey shine
Through their soft haze, and show their wavy line."—BAILLIE.

## 1. INFLUENCES.

**i. Geographical.**—See page 194. It would be hazardous to lay too much stress upon the relations, during the various phases of this period, of England with the Continental powers; but the relative cordiality of our relations with France, or Holland, might be seen by some to be reflected in the architectural fashion of successive periods. The closing of the Continent to travel during the great war at the end of the eighteenth, and beginning of the



202. THE HALL, HATFIELD, HERTS.
Showing the Music Gallery.

nineteenth century, certainly coincided with the worst phase of our architecture.

ii. **Geological.**—Refer back to English Gothic, page 194. In the increase of population and cultivation of the land, the forests of Lancashire, Cheshire, Shropshire, and Herefordshire were reduced, and wood had been gradually disused as an external building material, so that the timber architecture of the mediæval period had died out. In London, the importation of Portland stone by Inigo Jones, a material very similar in weathering and effect to that used in the Renaissance palaces of Venice, should be noted. The use of brick received a great impetus after the Fire of London, and was again brought into prominence on the introduction of the Dutch fashion. "Flemish" bond, as a technical term, has its significance.

Terra-cotta for ornamental details was introduced by the Italian craftsmen of Henry VIII., notably the busts of Emperors at Hampton Court by Giovanni da Majano and the tomb in the Rolls Chapel (A.D. 1516) by Torrigiano.

iii. **Climate.**—No change can be alleged here, but at least a great increase of warmth and comfort has been found necessary. The opening out of the great coal industry, by cheapening fuel, has led to each room having a fireplace, and incidentally, to other features that did not complicate the architecture of the earlier periods.

iv. **Religion.**—In the early part of the sixteenth century a stir in religious matters took place in Western Europe, partly on account of the abuses which had crept into the Church, which the Popes failed to rectify, and also because the authority of the Pope was increasingly felt to be irksome.

The suppression of the monasteries (1536–1540) caused the diffusion of vast sums of money and land, which Henry VIII. distributed at will among his courtiers.

Monasteries either fell into ruin or were converted into cathedral churches on the monastic foundation. Others were cleared away for the erection of houses according to the new taste, the funds for which enterprises proceeded from the newly seized revenues.

The Act of Supremacy, 1559, settled the relation of the English Church to the power of the Crown.

v. **Social and Political.**—The historical and other events which paved the way for the introduction of the Renaissance into England are many and significant. Some of these have been dealt with under Renaissance (page 305), and the following aided the movement :—

The end of the Wars of the Roses, which had lasted from 1455 to 1485, during which period architecture was practically at a

standstill. Secondly, the terrible destruction to life caused by these wars, for no less than twelve pitched battles were fought, eighty princes of the blood were slain, and the almost entire annihilation of the ancient nobility of England took place. The new men who succeeded were naturally more susceptible to any new intellectual movement; they desired, moreover, new and important country houses, being in every way anxious to provide themselves with the paraphernalia suited to their rank.

The invention of gunpowder rendered obsolete the ancient castles, and newer fortresses tended to become merely military posts, no longer habitable as palaces by a king, or as seats by the nobility.

The introduction of printing by Caxton (1474) powerfully aided the new movement, as the hoarded knowledge of the world could then be disseminated, causing the enlargement of men's ideas and the increased spread of knowledge throughout the country.

The death of James IV. of Scotland, at Flodden, 1513. His alliance with France indicates French influence in Scotland.

The court of Henry VIII. was composed of men who were connected with the new movement, and here, amongst artists, we find Holbein, from Basle; Torrigiano, who executed Henry VII.'s tomb in Westminster Abbey (A.D. 1512); and Rouezzano and Giovanni da Majano. A certain John of Padua was also brought to England by Henry VIII., and is usually credited with the design of Longleat.

Henry VIII. and Edward VI. employed part of the funds obtained from the suppression of the monasteries (1536–1540) to the erection and endowment of grammar schools and colleges, which play an important part in the development.

The building schemes of Protector Somerset were cut short by his execution (A.D. 1552).

The reign of Elizabeth (A.D. 1558–1603) inaugurated the era of the erection of the great domestic mansions. In literature the writings and influence of Spenser, Shakespeare, Burleigh, and Sir Philip Sidney are to be remarked.

During Elizabeth's reign Flemish and German workmen and weavers came to England in large numbers, settling in the eastern counties especially, and thereby influencing the architecture of certain districts.

Finally, the wars against the Huguenots in France, and the Massacre of St. Bartholomew in A.D. 1572, led to the emigration of many skilled craftsmen to England, which influenced, not a little, the efficient execution of the newly-imported classical architecture.

**vi. Historical.**—Henry VIII. had undisputed possession of



203. STAIRCASE, KNOWLE, KENT.

the English crown. He mixed generally with foreign affairs; the meeting with the French king at the Field of the Cloth of Gold, 1520, is an event of some significance, and bears an important relation to the introduction of Renaissance details into England. Henry declared the Pope to have no jurisdiction in England. Edward VI. continued the Reformation, but Mary's policy was reactionary, and marks the era of Spanish influence in England. Under Elizabeth (1558–1603), the Reformation was finally settled, and the defeat of the Spanish Armada, 1588, marks the decline of Spanish power in Europe. Charles I.'s attempts to develop art were cut short by the outbreak of Puritanism. Under Charles II. French influence was potent, and with Louis XIV. France reached its greatest glory. The rise of Holland was taking place, and on the expulsion of James II. by William of Orange, Dutch influence made itself felt. With the accession of George I. (the Hanoverian dynasty) commenced an era of quiet domestic progress. The growth of London proceeded rapidly. Art slowly deteriorated, until the Exhibition of 1851 marks the commencement of a revival.

## THE ELIZABETHAN STYLE (A.D. 1558–1603).[1]

### 2. ARCHITECTURAL CHARACTER.

**Elizabethan Architecture** is a transition style, and immediately followed the Tudor or late Gothic, which carries us to the reign of Henry VIII. (see page 249). It bears the same relation to Anglo-Classic, or fully-developed English Renaissance, as the *Francis I.* period does to fully-developed French Renaissance.

The period of the Elizabethan style resembles that of the Early French and German Renaissance in that church building was at a standstill, practically no church being erected in the Elizabethan style at all, sufficient being left from the Middle Ages for the wants of the people. Elizabethan architecture thus differs from the Italian Renaissance, in which church building took the principal place.

Elizabethan architecture resembles that of the French Renaissance in that the principal examples were country houses erected by powerful statesmen and successful merchants and newly-enriched gentry, and differs from Italian Renaissance, in

[1] English Renaissance architecture may be divided into the following periods: Elizabethan, page 395; Jacobean, page 400; Anglo-Classic (Seventeenth Century), page 405; Eighteenth Century, page 413; Nineteenth Century (to 1851), page 423; Nineteenth Century (1851 to the present day), page 427.

which the principal examples were erected in cities. The influence of landscape gardening was important, for in framing the house with forecourt, formal garden, arcades, fountains and terraces, a special and finished character was given to the whole design.

Many Gothic features, such as the tower, oriel, bay window, the gable, the large mullioned window, and pierced parapet were retained.

The Elizabethan style may be said to be an attempt, on the part of the English, to translate Italian ideas into their own vernacular; it does not confine itself to architecture only, but pervades the whole fitting of buildings, in furniture and decoration. Elizabethan art forms in this respect a style complete in every aspect.

## 3. EXAMPLES.

### ELIZABETHAN MANSIONS.

The Elizabethan house, as already mentioned, attracted the particular attention of the designers of the period (see v. Social and Political, page 393). Two general types of house plan were in use at the beginning of the sixteenth century. The smaller type consisted of a hall placed centrally, with kitchen and offices at one end and withdrawing and living rooms at the other. Sometimes internal courts for lighting were employed, as at Chastleton in Oxfordshire.

The larger type of house was evolved from the quadrangular plan, arranged round a large internal courtyard already described as belonging to the fortified houses of the Middle Ages (No. 100 B).

The later Elizabethan architect, however, tended more and more to renounce this quadrangular plan by omitting the side forming the entrance and thus producing a three-sided court, allowing of the penetration of the sun and the free circulation of air about the building. Thus the E-shaped plan came into existence, as at *Hatfield House* (No. 100 D, E). The gatehouse on the centre of the side forming the entrance, which was typical of the Tudor period, became a detached building, as at Burton Agnes (Yorkshire) (A.D. 1610), Cranbourne (Dorsetshire), Stanway (Gloucestershire), and elsewhere.

The H-shaped plan was evolved by extending the wings on both fronts, as at *Holland House, London* (No. 205 A, B).

Other fanciful designs showing extreme originality were erected, as *Longford Castle*, a triangular house attributed to John Thorpe (No. 100 F).



204. LONG GALLERY, HADDON HALL, DERBYSHIRE.

The following features occur in the principal examples :—

i. The *great hall*, a feature handed on from Gothic times (No. 202), lined to a height of 8 or 10 feet with oak panelling, while above are arranged the trophies of the chase, armour, portraits of ancestors, family relics and heirlooms.

At one end of the hall, by the entrance, is the carved oak screen, over which is placed the minstrels' gallery; at the other end is the raised daïs with a tall bay-window, the sill reaching nearly down to the ground. The hall fireplace is much elaborated (No. 210 K), and richly carved with the coat-of-arms of the owner, and the timber roof, of hammer-beam construction (No. 85), or of panelled plaster (No. 202), is often elaborately treated. The hall in the later period became of less importance as a living room, and was used more as a means of communication.

ii. The *broad staircase* of oak (Nos. 203 and 205 E) is a special feature, with its heavily-carved newels, pierced balustrading, and rich carving. It is generally placed in connection with the hall, and lends to the interior an air of spaciousness and dignity.

Its importance is due to the fact that the chief living rooms were often placed on the first floor and therefore demanded an important means of approach.

iii. The *long gallery* on the upper floor (Nos. 100 E and 204) often extends the whole length of the house. The proportions of this apartment vary considerably from the hall in being comparatively low and narrow in proportion to the length. It served as a means of communication between the wings of the house, the hall being often two storeys in height. The length is frequently relieved by room-like projecting bays—those at Haddon Hall being as large as an ordinary room (15 feet by 12 feet), with stone-mullioned windows, glazed with leaded panes (No. 204). The walls are panelled in oak the full height, and the ceiling is richly modelled in plaster. There is no feature of an old English mansion more characteristic than these galleries.

The term "picture gallery" is supposed to be derived from these apartments, and below are dimensions of important examples.

Aston Hall is 136 feet by 18 feet and 16 feet high.

Montacute is 170 feet long by 20 feet 6 inches wide.

Hardwick (A.D. 1590–1597) is 166 feet long, 22 feet 5 inches wide by 26 feet high.

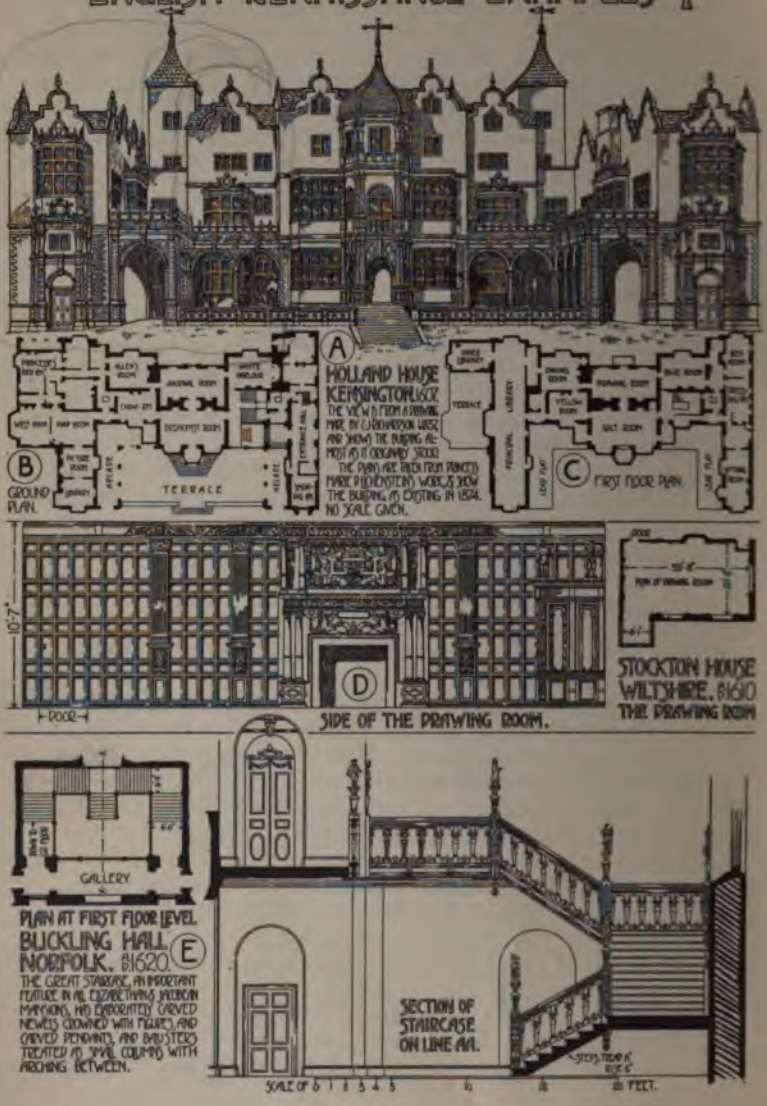
Charlton (Wilts) is 130 feet by 22 feet.

Haddon Hall is 109 feet by 18 feet wide.

Moreton Hall (A.D. 1559) is 75 feet by 12 feet 6 inches by 9 feet high.

iv. Other rooms are the *withdrawing room*, or "solar" of Gothic times, very often a *chapel*, and the *bedrooms*, which increased

# ENGLISH RENAISSANCE EXAMPLES I





206. KIRBY HALL, NORTHANTS.

The Courtyard.

considerably in number and importance after the close of the Gothic epoch.

An example of an apartment treated with panelling its whole height and with elaborate carved chimneypiece is shown in No. 205 D, from Stockton House, Wiltshire.

LIST OF SOME FAMOUS ELIZABETHAN MANSIONS.

| *Name.* | *Date.* | *Architect.* |
|---|---|---|
| Charlecote. | A.D. 1558. | |
| Kirby (Northants) (No. 206). | A.D. 1570–1575. | John Thorpe (?). |
| Knole (Kent). | A.D. 1570. | |
| Penshurst (Kent) (No. 101). | A.D. 1570–1585. | |
| Burghley (Northants). | A.D. 1575–1589. | John Thorpe. |
| Longleat (Wilts). | A.D. 1567. | John of Padua (?). |
| Westwood (Worcest.). | A.D. 1590. | |
| Wollaton (Notts). | A.D. 1580. | R. Smithson. |
| Longford Castle (Wilts). | A.D. 1580 (later façade). | John Thorpe. |

Longford Castle was originally triangular in plan (No. 100 F), with circular towers at each angle, and central open triangular courtyard. It was added to in the last century, and now forms an irregular pentagon on plan.

Moreton Hall (Cheshire) (No. 207), A.D. 1550–1559, is an example of many of the timbered houses, erected in the period, for which Shropshire is specially famous.

## ELIZABETHAN COLLEGES.

Many of the colleges at Oxford and Cambridge were erected during this period, and these buildings, situated within the seats of revived learning, naturally gave a great impetus to the new style, as object lessons to the rising generation.

CAMBRIDGE.

| *Name.* | *Date.* | *Architect.* |
|---|---|---|
| The Gate of Honour, Caius College. | A.D. 1565–1574. | Theodore Haveus of Cleves (?). |
| Sidney Sussex College (Court). | | Ralph Simons. |
| The Quadrangle, Clare College. | A.D. 1634. | Westley. |
| St. John's College (Court). | | Ralph Simons. |
| Nevill Court, Trinity College. | A.D. 1593–1615. | Ralph Simons. |

OXFORD.

| *Name.* | *Date.* | *Architect.* |
|---|---|---|
| Gateway of the Schools (No. 208). (Note the superimposed orders.) | A.D. 1612. | Thomas Holt. |
| Merton College (Library). | | Thomas Holt. |
| Wadham College (Roof of Hall and Library). | | Thomas Holt. |
| Oriel and Jesus Colleges (portions of) and others. | | Thomas Holt. |

## ELIZABETHAN TOWN HOUSES.

Many interesting specimens have come down to us, and among them are several houses of half-timber construction, as, for example, in London, Staple Inn, Holborn, the Hall of Charterhouse, Sir Paul Pindar's House in Bishopsgate (now in the South Kensington Museum), and many other examples in Chester, and other of the country towns throughout England.

**4. COMPARATIVE** (see page 401).

**5. REFERENCE BOOKS** (see page 403).

## THE JACOBEAN STYLE (A.D. 1603–1625).

**1. INFLUENCES** (see page 392).

### 2. ARCHITECTURAL CHARACTER.

During the reign of James I. the Renaissance style, although a continuation of the Elizabethan, was further developed, losing more and more of Gothic tendency and picturesqueness as classic literature and models became better known, and the use of the classic columns with their entablatures was more general. The celebrated architect, John Thorpe, erected several of the mansions of this epoch, and his book of "compositions," preserved in Sir John Soane's Museum, should be studied by the student.

In examining the buildings of this style, we shall be struck with their suitability to the wants of the people in whose era they were erected. Some of the detail and ornamentation may



207. LITTLE MORETON HALL, CHESHIRE. –





208. The Tower of the old Schools (now the Bodleian Library), Oxford.

be considered questionable, but they were at least the outcome of the social conditions of that age. An examination of the mansions erected during the Elizabethan and Jacobean periods, most of which are easily accessible to the student, will bring as much if not more pleasure than the study of the buildings of any other period of Architecture in England. Jacobean furniture design continues on the same lines as the architecture.

## 3. EXAMPLES.

LIST OF SOME FAMOUS JACOBEAN MANSIONS.

| *Name.* | *Date.* | *Architect.* |
|---|---|---|
| Holland House, Kensington (No. 205). | A.D. 1607. | John Thorpe. |
| Bramshill, Hants (No. 210). | A.D. 1607–1612. | |
| Hatfield House, Herts (Nos. 100 D, E, 202 and 209). | A.D. 1611. | |
| Audley End, Essex. | A.D. 1603–1616. | Bernard Jansen. |
| Loseley Park, near Guildford. | | |
| Bolsover Castle. | A.D. 1613. | H. Smithson. |
| Blickling Hall (No. 205). | A.D. 1620. | |

## 4. COMPARATIVE.

### ELIZABETHAN AND JACOBEAN.

A. **Plans.**—Often E or H-shaped on plan (No. 205 B), the entrance being in the middle of the letter, and the two ends forming wings, as at Bramshill, Hardwick, Longford, Hatfield (No. 100 D, E), Longleat, Burghley, Loseley, and Audley End, while many are irregular in plan, as Knole, Penshurst (No. 101 F), and Haddon (ball-room wing), such grouping being often brought about through the work being an addition to a previous Gothic house.

Broad terraces raised above the garden level (No. 205 B), and leading thereto with wide flights of steps and balustrades, are a charming feature in the style. These are often laid out in a formal manner, with yews, box, and other trees cut in fantastic patterns.

The characteristic broad staircases have also been referred to (Nos. 203 and 205 E).

B. **Walls.**—Elevations have the character of picturesqueness,

and the classic orders are used in a free and easy manner, often placed one above the other in the façades, as at Hatfield House (No. 209), the Gateway of the Schools at Oxford (No. 208), and Kirby Hall (No. 206), and Holland House (No. 205).

The gables are often of scroll-work, following in a general way the slope of the roof (Nos. 205 and 206).

The chimney stacks are a special and prominent feature: they are often treated in a classical manner, with orders, as at Burghley and Kirby (Nos. 101 C, 206 and 209), but generally are of cut brickwork, the shafts being carried up boldly, so that they play an important part in the composition and outline of the house.

Parapets are pierced with various designs with characteristic detail (Nos. 209 and 210 A, B), the baluster being much employed.

C. **Openings.**—Bay windows are largely used, as at Haddon (No. 204), Longleat, Holland House (No. 205), and Kirby Hall (No. 206), and form an important element of the style.

Large heavily-mullioned windows (Nos. 202, 204, 206 and 207), filled in with leaded glass, and crossed by horizontal transoms, are a special feature adopted from the late Gothic period.

Arcades are often introduced, as at Hatfield, Bramshill, etc. (Nos. 205, 209 and 210 G).

Dormers are largely used, and turrets are in common use (Nos. 205 A and 208).

Oriel windows are a common feature, as at Bramshill (No. 210 E).

Doorways are often elaborate in design, as in Nos. 206, 208, 209 and 210 D.

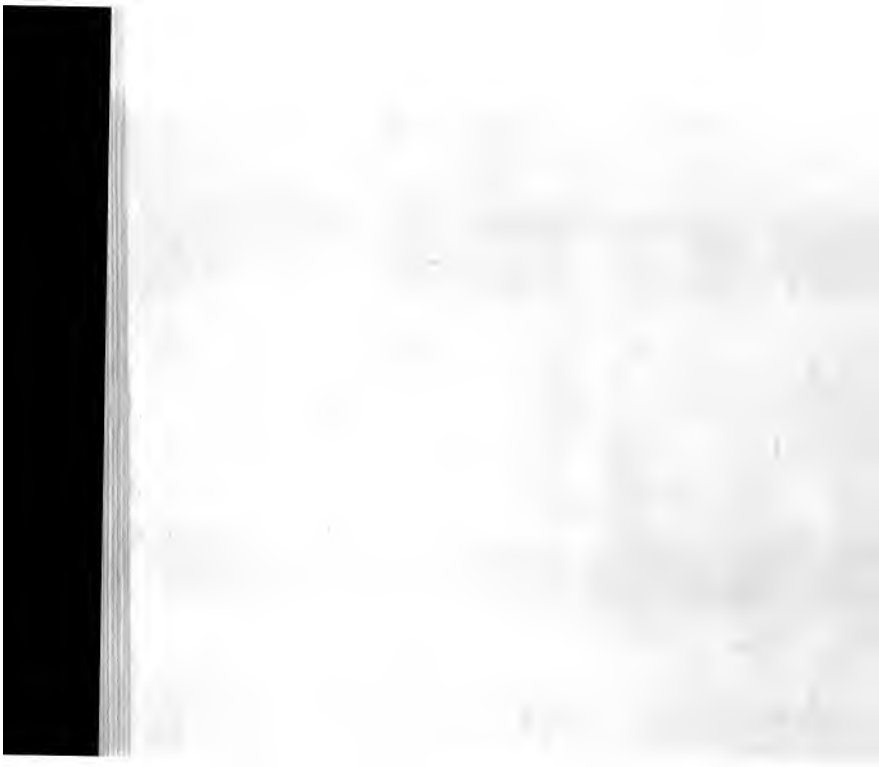
> "Through this wide opening gate
> None come too early, none return too late."

D. **Roofs.**—The use of high, flat, or low roofs with balustrades, occurs both separately and in the same design (No. 205 A). Lead and tiles are both used, and also stone slabs in certain districts. The balustrade, arcaded, pierced, or battlemented, is a constant feature (Nos. 205 A, 209 and 210).

E. **Columns.**—The orders are employed rarely with purity; at Longleat, the most Italian-like example, the topmost are the smallest, corresponding to the local use of the best rooms on the ground floor. Bramshill has a centre which is perhaps the most licentious specimen of the style. A characteristic treatment is the reduction downwards, more especially in pilasters, accompanied by bulbous swellings (No. 210 K). Square columns are used, banded with strap ornamentation (No. 210 G); pilasters are similarly treated or panelled. Arcades are much employed, especially in the form of recessed *loggie*, as at Bramshill (No. 210 G), and Hatfield (No. 209).



209. HATFIELD HOUSE.
South Front.



F. **Mouldings.**—Local and coarse in many instances. Two characteristics are the corona of a cornice, as a huge cyma above a small ogee; and the use of convex cornices, often banded or carved at intervals. Plaster work seems to have influenced in many ways the sections employed (No. 210 M).

G. **Ornament** (No. 210).—Strap ornamentation is formed by raised bands, of about the width and thickness of a leather strap, interlaced in grotesque patterns, as in the ceilings, etc., of the period, and attached as if by nails or rivets (No. 210 H, J, M). It is considered by some as derived from the East, through France and Italy, in imitation of the damascened work which was at that period so common. This type of detail is also found in pilasters, as at Hatfield (No. 209), on piers and in spandrels, as at Bramshill (No. 210 G).

Grotesquely carved figures as terminals occur (No. 210 C). In carving, ribbons, scrolls, and festoons were preferred to Gothic foliage types.

Prismatic rustication, or the projection of blocks of stone of prismatic form (No. 210 G), occurs in pilasters and pedestals, and in later times coloured stones are inserted in their stead.

Plaster work (Nos. 203, 204 and 210 M) is used with great skill in design, and adaptability to the material for ceilings. Broad friezes in the same material are sometimes modelled with much quaintness and grotesque feeling, as at Hardwick. Tapestries continued to be used for walls. Colour decoration made little or no progress.

The screens, mantelpieces, entrance porches, monuments and tombs (No. 210 F), such as the monuments to Elizabeth (A.D. 1604) and Mary Queen of Scots in Westminster Abbey, are characteristic features of the ornamental details of the period.

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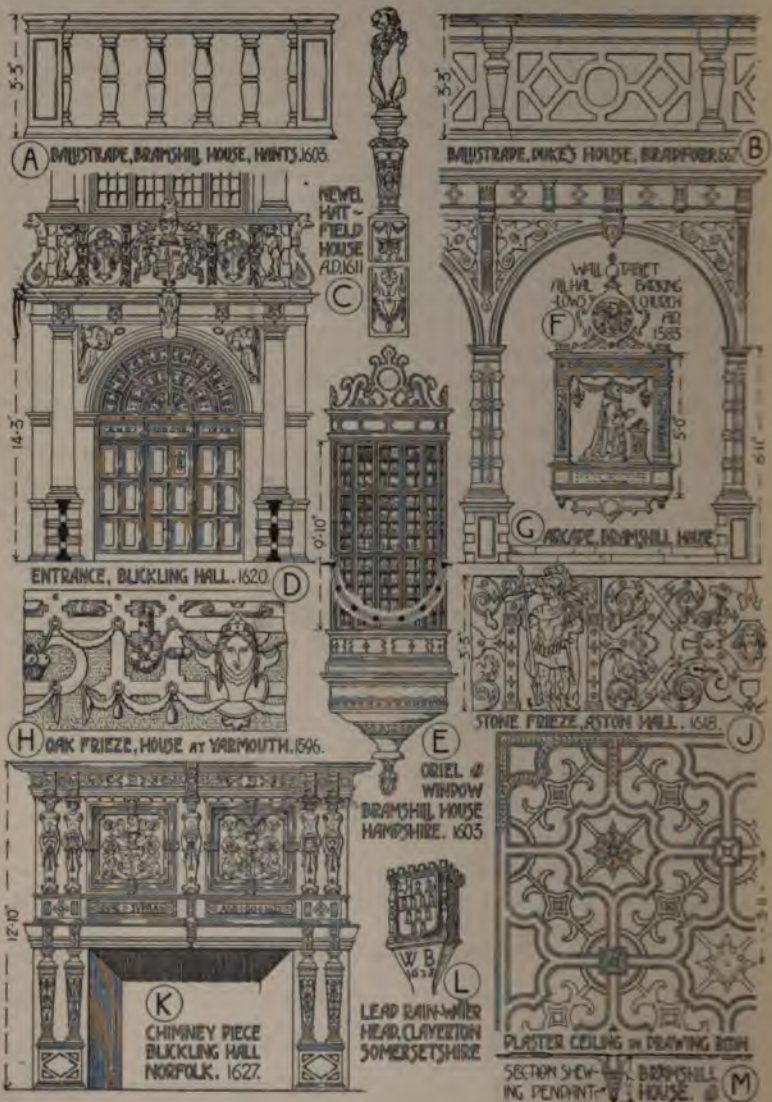
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## THE SEVENTEENTH CENTURY, OR ANGLO-CLASSIC STYLE.

### 1. INFLUENCES (see page 392).

### 2. ARCHITECTURAL CHARACTER.

Elizabethan and Jacobean, which are transitional styles, between late Gothic and the purer classicism of the period we are about to discuss, at length gave way before the influence of Inigo Jones and Wren. These architects are to be considered as the founders of the Anglo-Classic, or fully-developed Renaissance, in England.

### 3. EXAMPLES.

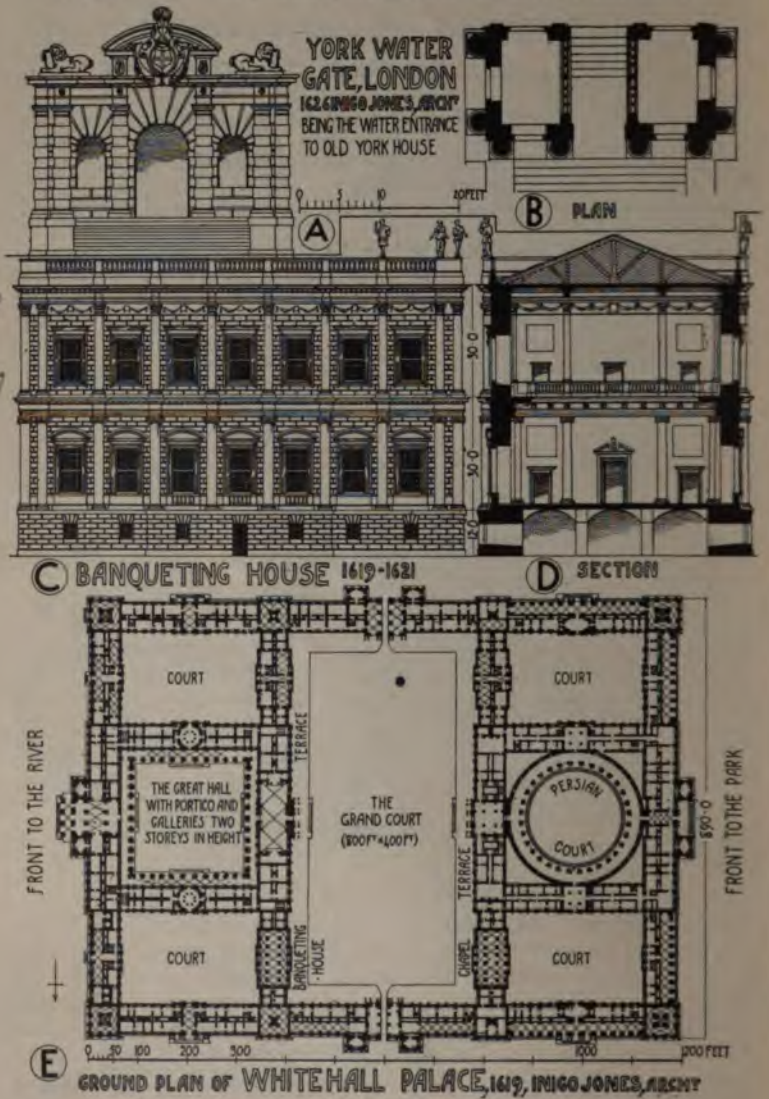
#### INIGO JONES (1572-1652).

His work was influenced by long study in Italy, at Venice, and especially at Vicenza, Palladio's native town. He was invited to Copenhagen by the King of Denmark, but returned to England in the train of the wife of James I. He revisited Italy, in 1612, for further study, and on his return introduced a purer Renaissance style, founded on Italian models and ornamentation. Palladio was Inigo Jones's master in design, and has since always had a great influence on English architecture.

The Commonwealth intervened, and checked the execution of many of Inigo Jones's designs.

High Res

# ENGLISH RENAISSANCE EXAMPLES II.



**His principal Buildings and designs are :—**

The Quadrangle of **St. John's College, Oxford,** in the early transition style.

**Chilham Castle, Kent,** also transitional; E-shaped façade, with radiating side wings, forming a horseshoe court at the back. *Materials :*—Brick and stone dressings.



**Porch of S. Mary, Oxford.**

**The Banqueting House, Whitehall** (A.D. 1619–1621), which is a part only of a Royal Palace, one of the grandest architectural conceptions of the Renaissance (No. 211). The greater part of the building was to be three storeys in height, each storey 30 feet, and the height to the top of parapet was to be 100 feet. The remainder, being curtain wings to the main blocks, in design like the Banqueting House (No. 211 C), was to be 75 feet high, divided into two storeys. The plan (No. 211 E) was arranged round courtyards, one of which was to be circular (compare Spain, page 385). The great court would have vied with that of the Louvre. In this design, proportion, elegance, and purity of detail, are more happily combined than in any other Renaissance scheme of the kind.

**St. Paul's, Covent Garden,** was erected in A.D. 1631, and the main characteristics are that it is severe and imposing, by reason of its simplicity and good proportions. The arcades and buildings around the market were also designed by Inigo Jones.

The Duke of Devonshire's **villa at Chiswick** was founded on Palladio's villa at Vicenza (see page 344). It is important because it marks the earliest introduction of the "pediment and portico" style, which in the next century leads to the neglect of those fundamental principles of architecture, namely, suitability of purpose, utility, and appropriateness.

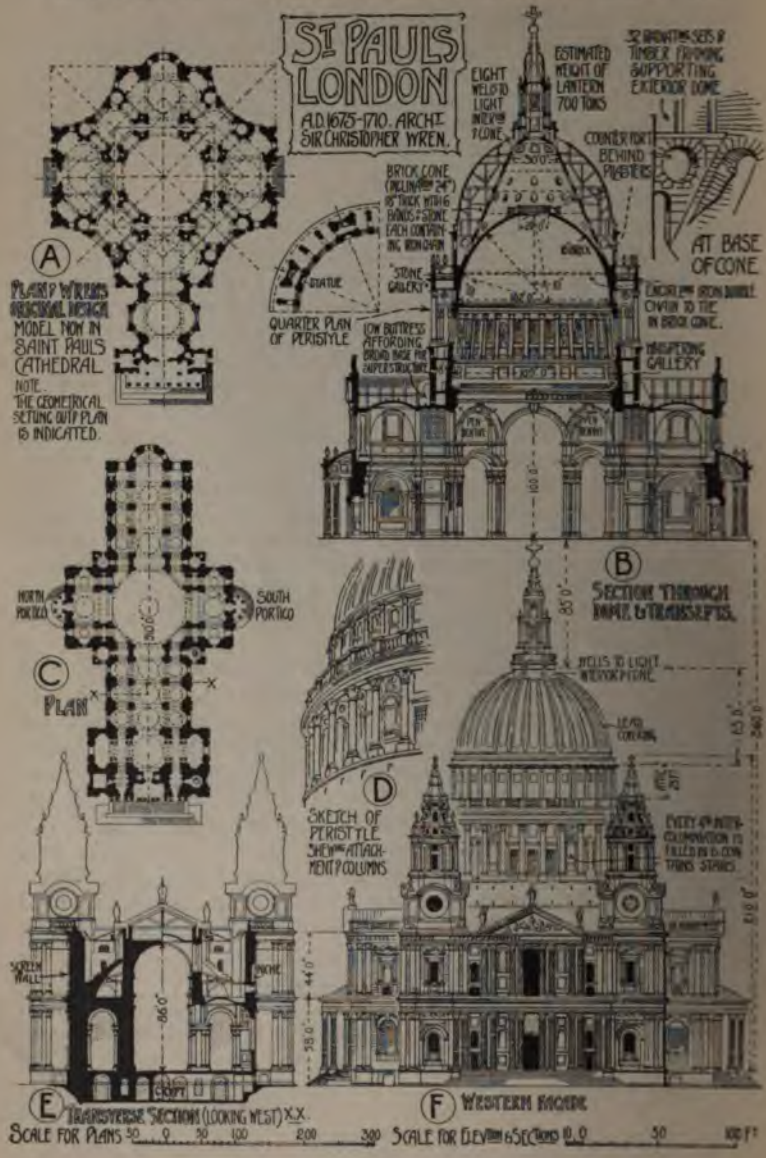
The river façade of **Greenwich Hospital** (A.D. 1715), executed by Webb, a pupil of Inigo Jones, has the two lower storeys included under one huge Corinthian order.

**York Water Gate, London** (No. 211) (A.D. 1626), executed by the master mason Nicholas Stone, formed the river entrance to Old York House, since destroyed. The gateway is now in the Embankment Gardens.

**The King's House, Greenwich** (A.D. 1639) (No. 199 A), and **Chevening House** (No. 100 H, J), are examples of his smaller works.

Wilton House, Wiltshire, Houses in Lincoln's Inn Fields, Great Queen Street, and Ashburnham House, Dean's Yard (notable staircase), and Stoke Park (No. 100 G), are other examples of his works.

# ENGLISH RENAISSANCE EXAMPLES III.





213. St. Paul, London.

West Front.

## SIR CHRISTOPHER WREN (1632–1723)

was a scholar and a mathematician. His brilliant success at Cambridge as a scientist, and as an astronomical professor at Oxford, prepared him for many important constructive feats in after life. Wren's great opportunity was the destruction of London by the Great Fire in 1666, after which he devised a grand plan for the reconstruction, which was, however, abandoned for pecuniary and other reasons. As an architect, he lacked the more thorough technical education of Inigo Jones, and was not always able to clothe his constructive forms in equally appropriate detail.

Wren's study of French work at Paris, and elsewhere in France was, however, an important part of his education as an architect. The works on the Louvre were then in progress, and constituted a great school of art; in consequence, his work shows more French influence than that of Inigo Jones, which is pure Italian.

Palladio continued to be the inspirer of English work, as compared with Vignola, whom the French followed, but Wren gave often a semi-French turn to his designs, more especially in the decorative detail, as the attentive student will discover, on comparing his work with that of Inigo Jones.

His work is all tinged with classical colouring, the classical column and details are usually paramount. In many of his designs, in which he was obliged to study cheapness, he made up for it by spending thought, and all his designs, as Opie said, are mixed "with brains." A careful study of proportion of part to part is exhibited in his works.

Many of these, as St. Paul's and the City churches, are executed in Portland stone, which by its good weathering properties adds to the dignity and importance of monumental work; while in domestic work, he used red brick, with stone dressings, as at Hampton Court, Marlborough House, etc.

His **principal Ecclesiastical works** are:—

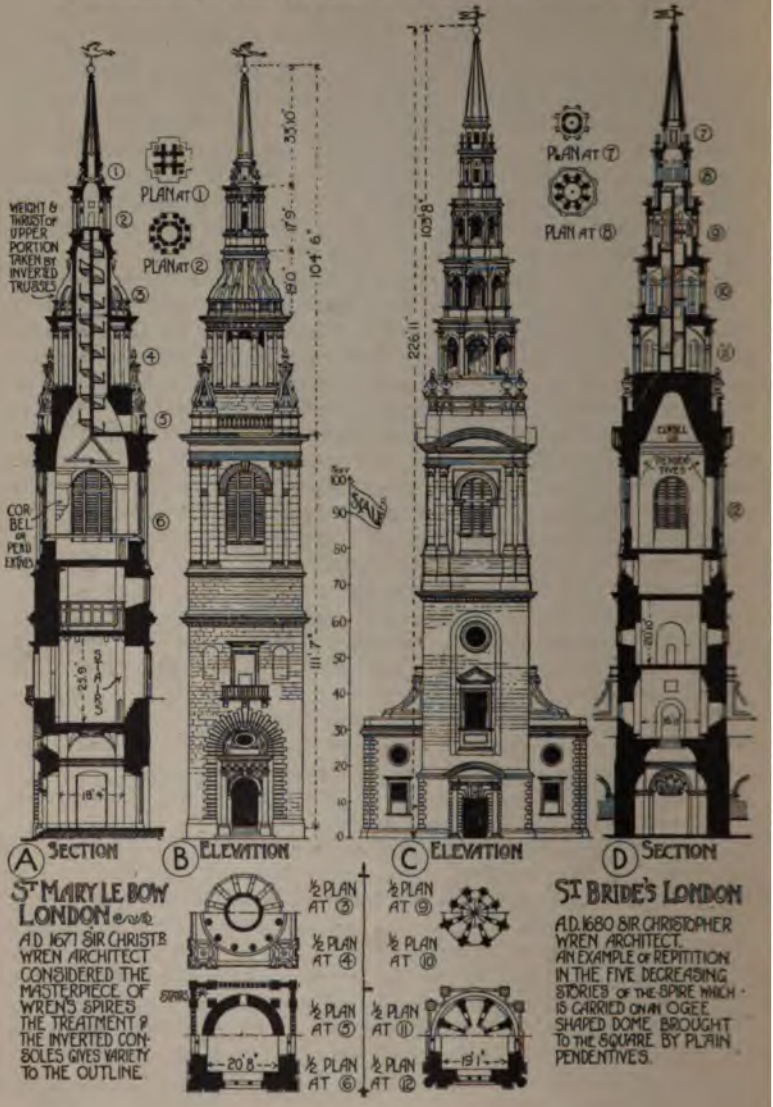
i. **St. Paul's, London,** 1675–1710 (Nos. 212, 213).

The first design prepared by Sir Christopher Wren was in plan a Greek cross (No. 212 A), as can be seen by the model in the north triforium at St. Paul's Cathedral. He was, however, compelled by the influence of the clergy to adopt the Latin cross, and mediæval type of plan (No. 212 C), which he clothed with the forms of classic architecture.

By the comparative set of plans (No. 174) given, it can be compared with St. Peter's, the Pantheon, Paris, and Cologne Cathedral.

St. Paul's is essentially an English type of plan, it is long, and has the dome in the middle of its length.

# ENGLISH RENAISSANCE EXAMPLES IV.




## St MARY LE BOW LONDON

A.D. 1671 SIR CHRISTR WREN ARCHITECT CONSIDERED THE MASTERPIECE OF WREN'S SPIRES THE TREATMENT & THE INVERTED CONSOLES GIVES VARIETY TO THE OUTLINE.

## St BRIDE'S LONDON

A.D. 1680 SIR CHRISTOPHER WREN ARCHITECT. AN EXAMPLE OF REPITITION IN THE FIVE DECREASING STORIES OF THE SPIRE WHICH IS CARRIED ON AN OGEE SHAPED DOME BROUGHT TO THE SQUARE BY PLAIN PENDENTIVES.

The section (No. 212 B) clearly shows the triple construction of the dome, which is carried on eight piers. It is, externally, perhaps, the most beautiful dome in existence. Notice particularly the unbroken exterior colonnade, and the blocking up of every fourth intercolumniation (No. 212 D), which produces an effect of strength and solidity. The supports of the dome are seen externally carried down to the ground, which is æsthetically satisfactory

The façade is two orders in height (No. 212 F), the lower being Corinthian, and the upper Composite.

The upper storey of the façade is, in reality, only a screen wall (No. 212 E), with nothing behind it, because the aisles are only one storey high; it is added to give dignity and expression to the composition, and also, by its weight, to counteract the thrust of the vaults. It is interesting to compare the construction with that of St. Peter's, Rome.

The interior decoration in glass mosaic, carried out under Sir W. Richmond, R.A., has already helped to endow the church with the colour with which it was originally intended to be adorned.

The poetess Joanna Baillie has well described the majestic appearance of St. Paul's, on a foggy day:—

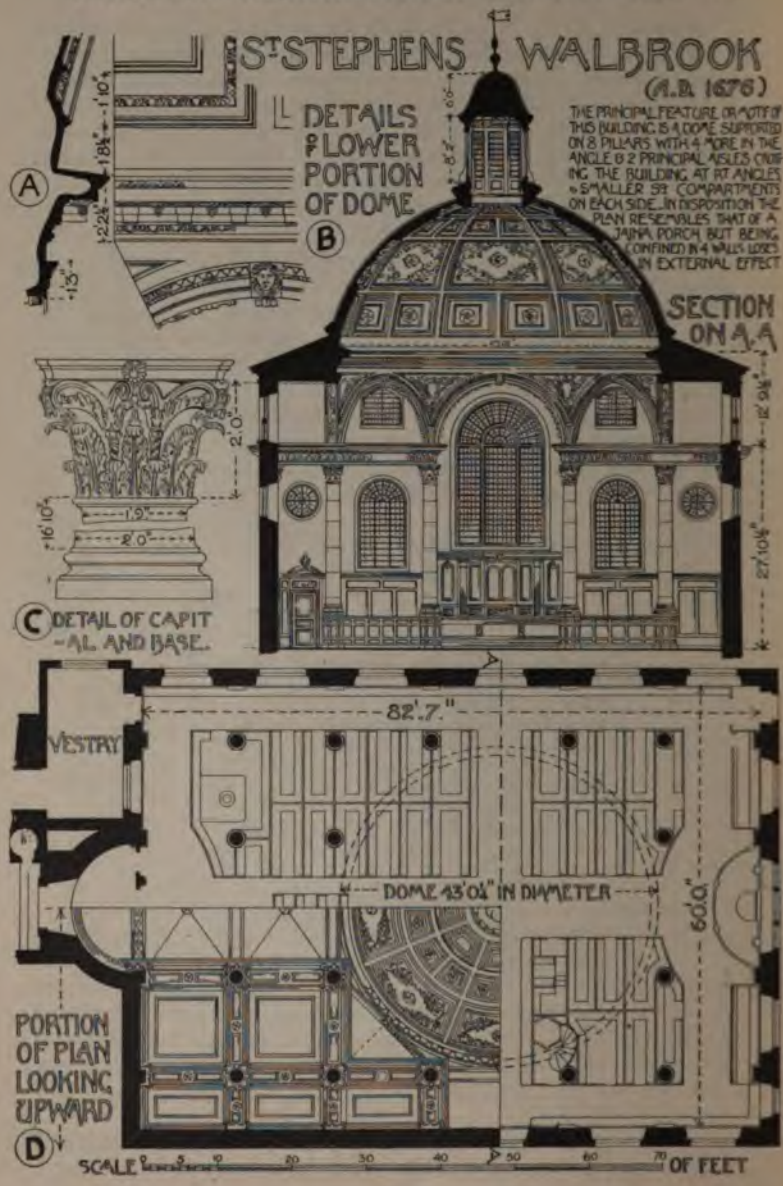
"Rear'd in the sky,
'Tis then St. Paul's arrests the wandering eye;
The lower parts in swathing mists conceal'd
The higher through some half-spent shower reveal'd.
So far from earth removed, that well I trow,
Did not its form man's artful structure show,
It might some lofty Alpine peak be deem'd,
The eagle's haunt, with cave and crevice seam'd.
Stretch'd wide on either hand, a rugged screen,
In lurid dimness nearer streets are seen,
Like shoreward billows of a troubled sea
Arrested in their rage."

| | *Time Building.* | *Architect.* | *Master Mason.* | *Bishops.* |
|---|---|---|---|---|
| St. Paul's | 35 years. | One. | One. | One. |
| St. Peter's. | 100 years. | Six. | — | Twenty. |

ii. Wren was also responsible for the erection of some fifty-three **City churches** in the Renaissance style between 1670–1711. Original planning on awkward and confined sites, and general suitability for Protestant worship, in which a central space for hearing the preacher is considered more important than the "long-drawn aisle" for processional purposes, are characteristic of all these churches. The buildings themselves are models of simplicity and restraint. Among the more important of these are:—

**St. Stephen's, Walbrook,** 1672–1679 (No. 215), original and ingenious in planning, and deservedly famous for the

# ENGLISH RENAISSANCE EXAMPLES V.



great effect produced by small means within a limited area. Sixteen columns, inclosed in a square, carry cross vaulting, and a central cupola, the latter resting on eight of the columns.

**Bow Church, Cheapside** (1680), which has the most successful steeple design (No. 214 A, B).

**St. Bride's, Fleet Street** (Nos. 214 C, D and 216).

**St. James's, Piccadilly.** Commodious and economical (No. 216).

The Western Towers of Westminster Abbey and Warwick Church Tower are examples of his Gothic work.

iii. Amongst the secular works carried out by Wren are:—

The **Sheldonian Theatre, Oxford,** 1664. The constructive carpentry in the roof is an evidence of his scientific skill, as is also the splendid acoustic properties of the hall.

**Inner Court, Trinity College, Oxford,** 1665.

The **Library of Trinity College, Cambridge,** 1679.

The **Monument,** by London Bridge, 1671.

**Hampton Court** (The Fountain Court and garden façade), 1690.

**Greenwich Hospital,** 1698 (the two blocks furthest from the river), combined in a group at once picturesque and stately.

**Chelsea Hospital, Morden College, Blackheath,** and **Kensington Palace,** quiet brick designs.

The **Temple, London,** 1674-1684. Plain brickwork and wooden doorways. Entrance gateway to Fleet Street, (1684).

**Marlborough House, Pall Mall,** A.D. 1709.

### 4. COMPARATIVE (see page 419).

### 5. REFERENCE BOOKS (see page 421).

## THE EIGHTEENTH CENTURY, "QUEEN ANNE," "GEORGIAN" OR "PEDIMENT AND PORTICO" PERIOD.

### 1. INFLUENCES (see page 392).

### 2. ARCHITECTURAL CHARACTER.

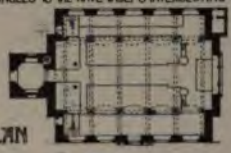
In the latter part of the seventeenth, and during the eighteenth century, the plan of the smaller type of house was usually a square,

# ENGLISH RENAISSANCE EXAMPLES VI.

## St James's Church Piccadilly London.

A.D. 1633. Sir Christopher Wren Archt.

Aisles in 2 stories the gallery being supported on a square pier on which are placed single columns. The aisles roofed by semicylindrical vaults at right angles to the nave vault & intersecting it.



(A) Plan



(B) Longitudinal Elevation.



(C) Cross Section (looking East)



(D) Longitudinal Section

## St Brides Church Fleet St London.

A.D. 1680-1699. Sir C. Wren Archt.

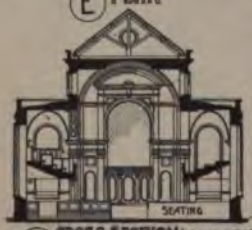
Interior coupled columns supporting roof having pilasters attached them carrying the galleries the columns have portions of entablature from which spring the nave arches.



(E) Plan



(F) Longitudinal Elevation.




(G) Cross Section (looking East)



(H) Longitudinal Section.

Scale for Plans 0 50 100 Ft Scale for Elevations 0 50 Ft

as at the King's or Queen's House, Greenwich (No. 199 A), or an oblong, as at Chevening (No. 100 H, J). In the square type the centre was frequently occupied by the top-lit salon, including the height of two storeys as at Greenwich. In the oblong type, the house was usually roughly divided into three, the centre third being occupied by the hall, salon and staircases; the basement by the kitchen, storerooms and cellars.

In the larger type of houses, the ground floor was frequently treated as a basement, and the first floor became the principal one, reached by an external flight of steps as at Rainham, in Norfolk, Castle Howard (No. 217 A, B, C), and Kedlestone (No. 217 D, E, F). In consequence, the internal staircase was reduced in importance, the principal apartments being mostly on the first floor. The hall, salon, and reception-rooms, to which everything was sacrificed, were placed in a central block, either square or oblong on plan (No. 217 C, F) superseding the E and H shaped Jacobean plans. On either side symmetrical detached wings were added, as at Holkham Hall (No. 100 K), or with connecting portions of quadrant form, often treated as colonnades, as at Stoke Park (No. 100 G), Castle Howard (No. 217 C), Blenheim (No. 199 F), Latham Hall, Lancashire, Moor Park, Herts, and Kedlestone (No. 217 F).

The Jacobean gallery survived in a modified form, as at Castle Howard (No. 217), Chatsworth, and Holkham (No. 100 K), and many other examples.

The publication, by the Earl of Burlington, of the designs of Inigo Jones, and of the drawings of the "Antiquities of Rome," by Palladio, in the early part of the century, are thus referred to by Pope in one of his epistles to the Earl of Burlington.

> "You show us, Rome was glorious, not profuse,
> And pompous buildings once were things of use.
> Yet shall, my lord, your just, your noble rules,
> Fill half the land with imitating fools;
> Who random drawings from your sheets shall take,
> And of one beauty many blunders make;
> Load some vain church with old theatric state,
> Turn arcs of triumph to a garden gate;
> * * * * * *
> Shall call the winds through long arcades to roar,
> Proud to catch cold at a Venetian door."

This passage suggests what really did happen, and characterizes the style of architecture so truly, that it is well worth quoting. In this period we shall enumerate the more important architects, and, as they were practising concurrently, it has been thought better to put their works into two columns.

The design of the buildings, not excepting the domestic class,

was influenced by a passion for symmetry and grandeur, which almost entirely put aside, as unworthy of consideration, the comfort and convenience of the people who had to occupy these buildings.

We might in this respect agree with Pope that

"'tis very fine,
But where d'ye sleep, or where d'ye dine?
I find l[illegible] telling
That 't[illegible] a dwelling."

Or we may quote [illegible]d, who said that General Wade had better t[illegible]osite his Palladian mansion (by Lord Burlington), [illegible]hing of it but the front.

We must not, however, [illegible] the fact that, at this time, there grew up a vernacular [illegible]most of the less important houses for the middle [illegible] being erected in the useful and modest *Queen* [illegible]ype of square house. Moreover, corridor plan[illegible] fast developing trade of the joiner, did much to further co[illegible]ice and comfort in domestic architecture.

## 3. EXAMPLES.

*Nicholas Hawksmoor* (1666-1763) was a pupil of Wren and followed him in his practice. Principal works: St. George's, Bloomsbury; St. Mary Woolnoth, in Lombard Street, London; St. George's in the East, London; St. Anne, Limehouse; Christ Church, Spitalfields. He also assisted Sir John Vanbrugh at Castle Howard and Blenheim. His works are much influenced both by Wren and Vanbrugh.

In Hawksmoor's works, ideas, of some originality and grandeur, are too often marred by eccentricities of treatment.

Badly-designed detail is a weak point with the pupils of Wren.

Hawksmoor held several Government appointments, notably clerk of the works at Kensington Palace and Greenwich Hospital.

*James Gibbs* (1683-1754). Principal works were: St. Martin's

*Sir John Vanbrugh* (1666.-1726). Principal works: Blenheim Palace (No. 199 F), the most important mansion of the period erected in England, is both picturesque and stately. It is the commencement of the Palladian type of house, in which a striving after symmetry and monumental grandeur, at the expense of usefulness, led to the debasement of architecture. In the plan of Blenheim, we should observe the extensive use of corridors as communicating passages, which is a great development in planning, and a step towards the privacy which is now insisted upon. Castle Howard, Yorkshire, A.D. 1714 (No. 217), is another example of a ponderous yet magnificent character. King's Weston, Gloucestershire (A.D. 1713) and Seaton Delaval, Northumberland, are other works.

*Thomas Archer* (d. 1743) was a pupil of Sir John Vanbrugh. He

in the Fields ; St. Mary-le-Strand, A.D. 1714 (notice that the tower of this church, on plan, is an oblong, not a square) ; the steeple, St. Clement Danes Church, London ; the Radcliffe Library, Oxford ; the Senate House, Cambridge ; Barthomew's Hospital, London. He published a book of his own designs, in which the above works, with others, may be found.

*William Talman* (d. 1715), Chatsworth, Derbyshire (A.D. 1681), Dynham House, Gloucestershire ; works at Hampton Court.

*Kent* (1684–1748), in collaboration with the Earl of Burlington, erected the Horse Guards, London, in which note the skilful grouping of the parts ; the Treasury Buildings, Horse Guards Parade ; Devonshire House, Piccadilly ; Holkham Hall, Norfolk (No. 100 K).

*The Earl of Burlington* (A.D. 1695-1753), an amateur architect and patron of art and specially of Kent, the architect. The Palladian Villa at Chiswick was designed by him.

*The Brothers Adam.* Robert Adam (1728–1792) published "Diocletian's Palace at Spalato," in the year 1760, a book which influenced architectural design. He erected two sides of Fitzroy Square ; the Adelphi Terrace (named after the four brothers) ; the screen in front of the Admiralty, Whitehall ; Caen Wood, Hampstead ; Kedlestone Hall, Derbyshire (No. 217) ; Stratford Place in Oxford Street, London ; and the College at Edinburgh.

The brothers Adam were the authors of a sufficiently marked style of interior decoration that is known by their name. Furniture and decoration were treated together with the design of the rooms themselves with refined and erected St. John's, Westminster, in the Rococo style, and St. Philip's, Birmingham, in the somewhat heavy style of his master.

*Colin Campbell* (d. 1734) was the compiler of the "Vitruvius Britannicus," which contains plans and elevations of all the country houses of any importance erected during the century, and which should be consulted by the student.

*Sir Robert Taylor* (1714–1788) erected the Pelican Fire Office, Lombard Street ; Ely House, Dover Street.

*George Dance, senior* (d. 1768), City architect of London, erected the Mansion House, London. His better known son was the designer of Newgate, the most appropriate of prison designs doomed to destruction ; also of St. Luke's Hospital.

*John Wood* (1704-1754) of Bath in conjunction with Dawkins, published the "Illustrations of Baalbec and Palmyra" in 1750, creating a taste for Roman magnificence. His best known work is Prior Park, Bath, and various works in that city.

*Sir William Chambers* (1726–1796), first Treasurer of the Royal Academy, wrote the "Treatise on the Decorative Part of Civil Architecture." He carried on the traditions of the Anglo-Palladian school, objecting strongly to the Greek revival then commencing. The proportions he adopted for the classical orders are given in No. 220. He travelled largely in Europe and the East. His great work is Somerset House, commenced in 1776 (No. 268), which is grand, dignified, and simple in its parts. A single order runs through two storeys, and

# ENGLISH RENAISSANCE EXAMPLES VII.



Ⓐ CASTLE HOWARD, GARDEN ELEVATION (1714) SIR JOHN VANBRUGH ARCHᵀ,



Ⓑ SECTION XX




Ⓒ PLAN OF CENTRAL PORTION



Ⓓ KEDLESTONE HALL, SOUTH ELEVATION (1761) ROBERT ADAM ARCHᵀ,



Ⓔ SECTION YY




Ⓕ PLAN

SCALE FOR ELEVATIONS

10 5 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 FEET

SCALE FOR PLANS

0 50 100 150 200 250 300 FEET

elegant details. Adams' chimney-pieces are specially characteristic.

*Henry Holland* (1740–1806) erected Claremont House, Esher; Carlton House (since destroyed, the Corinthian columns being employed at the National Gallery); Brooks's Club, London; the vestibule to Dover House, Whitehall, which is a charming and refined piece of work.

*James Wyatt* (1748–1813) studied in Rome. His works in London are: the Pantheon (1772) in Oxford Street, and White's Club; Lee Priory, Kent; Castle Coote, Ireland; Bowden Park, Wiltshire; and Fonthill Abbey. He undertook the restoration of many of the cathedrals in England and Wales, and the small knowledge of the true spirit of Gothic architecture then existing is responsible for his inability to effect these with any degree of success. Pugin has starred him with the affix "the destroyer."

rustication is largely employed. The character of his work in general is correct and refined, but lacking somewhat in originality and strength.

*James Gandon* (1742-1823), a pupil of Sir W. Chambers, erected the Custom House and the Law Courts at Dublin.

*Sir John Soane* (1750–1837), a pupil of the architect of Newgate, on his return from Italy was, in 1788, appointed architect to the Bank of England. This important building occupied many years of his life, and constitutes his masterpiece. The Corinthian order of the Temple at Tivoli was closely copied by him. Comparing this design with Newgate, it fails in the quality of apparent suitability of purpose. His designs are those of an original mind, but he was unable to clothe them with suitable details. There is a consequent taint of eccentricity. The Dulwich picture gallery is by him. The student should visit Sir John Soane's Museum, in Lincoln's Inn Fields, which was formerly his private house.

## 4. COMPARATIVE OF ENGLISH ARCHITECTURE IN THE SEVENTEENTH AND EIGHTEENTH CENTURIES.

A. **Plans.**—Are marked by regularity and symmetry, in many instances showing signs of being dictated by a preconceived elevation. The Italian use of a *piano nobile* above a storage basement, affected the planning of many country houses (No. 217). Excessive cellarage, or bad offices, occupy the ground floor, and the best rooms are reached by a great external staircase and portico (No. 217 D), or by a mean approach from a side door through the basement. The use of octagonal, circular, and elliptical-shaped apartments, often cubical in proportion, are usual (No. 217 C). Suites are arranged of such saloons in various combinations. Staircases receive much attention, ingenious domical, or other top lights, being introduced. Corridors

gradually supersede the hall and *en suite* systems of planning (Nos. 100 G, H, J, K, 199 F, 211 E and 217 C, F).

B. **Walls.**—Are usually thick, and filled in solid between the varied shapes of the rooms, on plan. Brick is used most commonly for the walling, and often for the facing, but in later work it is usually stuccoed. Stone is used as an ashlar facing and for dressings. Unbroken surfaces set off the porticoes, pilasters, or window dressings [illegible] the composition (No. 217). Blank walls, to [illegible]ssities, are not uncommon. Chimneys are [illegible]nents are the only form of gable, and are use[illegible] balustrades.

C. **Openings.**—[illegible]ced in number as much as possible, but infrequency of ope[illegible]is compensated for by large and unobstructed window areas [illegible]219 B). Porticoes, arcades, and doorways are regulated [illegible]proportions of the classical orders, and the minimu[illegible] of having to pass through them (No. 219 A, C, E), [illegible]m scale was a question of material and expense. Gate piers are frequently in excellent proportion (No. 219 G). Vertical grouping of windows is effectively developed, as in houses in Hanover Square. Large compositions of the windows of more than one room or storey are not affected by party or floor divisions, as in the houses of the Brothers Adam in Fitzroy Square, and elsewhere.

D. **Roofs.**—"No roof but a spherical one being sufficiently dignified" for this style, balustrades or attics conceal whatever is left of the lowest pitch of slates or tile possible (No. 217). In the smaller works tiles, and a wooden eaves cornice, are often effectively used. Domes, cupolas, and turrets are well designed. Those on a large scale are lead covered; small examples are sometimes entirely of wood. The splendid steeples of the period, in stone and leaded wood, rival mediæval spires in fanciful and skilful outlines (No. 214).

E. **Columns.**—The orders are used everywhere that funds permitted (No. 219). The small size of stone obtainable in England prevented single order porticoes on a large scale, until stucco and iron came in. Pilasters, however, are most often of two or more storeys in height (Nos. 217 A and 218). In interiors, columns, often purely decorative in function, are employed with considerable effect. The canons of proportion first laid down by Vitruvius were still further insisted on by Sir W. Chambers (No. 220), who took various Renaissance architects as his guide.

F. **Mouldings.**—The standard mouldings of the classic orders became the stock-in-trade of every workman, being applied in every material with small modification (Nos. 219, 220).

Work is thus often found of equal standard in very varied



218. SOMERSET HOUSE, LONDON. From the Embankment.

Early 19th Classic Revival

classes of building. The great use of wood, even in main external cornices, gives, by its possible smallness of scale and ease of working, some elaboration and refinement to very simple buildings.

G. **Ornament** (No. 219).—Wall tablets (No. 219 D), tombs (No. 219 J), and chimney-pieces (No. 219 H, K) are among the most pleasing decorative features in the style. Fresco artists are sometimes employed, as in the case of Verrio and Sir James Thornhill, but whitewash is usual. The orders are executed with facility in wood or plaster, or both. Decoration, founded on Roman, or in the later period, on Greek examples, is modelled in stucco with great skill and effect. French work of the style of Louis XIV. and his successors was also followed, while the Brothers Adam and others imported Italian workmen, who carried the art to a high pitch of technical excellence.

## 5. REFERENCE BOOKS.

### LATER ENGLISH RENAISSANCE.

(SEVENTEENTH AND EIGHTEENTH CENTURIES.)

Adam (R. and J.).—"Works in Architecture." 3 vols., folio. 1773–1822.

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Belcher (J.) and M. E. Macartney.—"Later Renaissance Architecture in England." 2 vols., folio. 1897–1901.

Birch (G. H.).—"London Churches of the Seventeenth and Eighteenth Centuries." Folio. 1896.

Blomfield (R.).—"A History of Renaissance Architecture in England." 2 vols., 8vo. 1897. (Also abridged edition. 8vo. 1900.)

Clayton (J.).—"Works of Sir Christopher Wren—the Parochial Churches of London and Westminster." Folio. 1848–1849.

Gibbs (J.).—"Book of Architecture." Folio. 1728.

"Inigo Jones's Designs." By W. Kent. Folio. 1835.

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Papworth (W.).—"Renaissance and Italian Styles of Architecture in Great Britain." 8vo. 1883.

Stratton (A.)—"The Life, Work, and Influence of Sir Christopher Wren." Folio. 1897.

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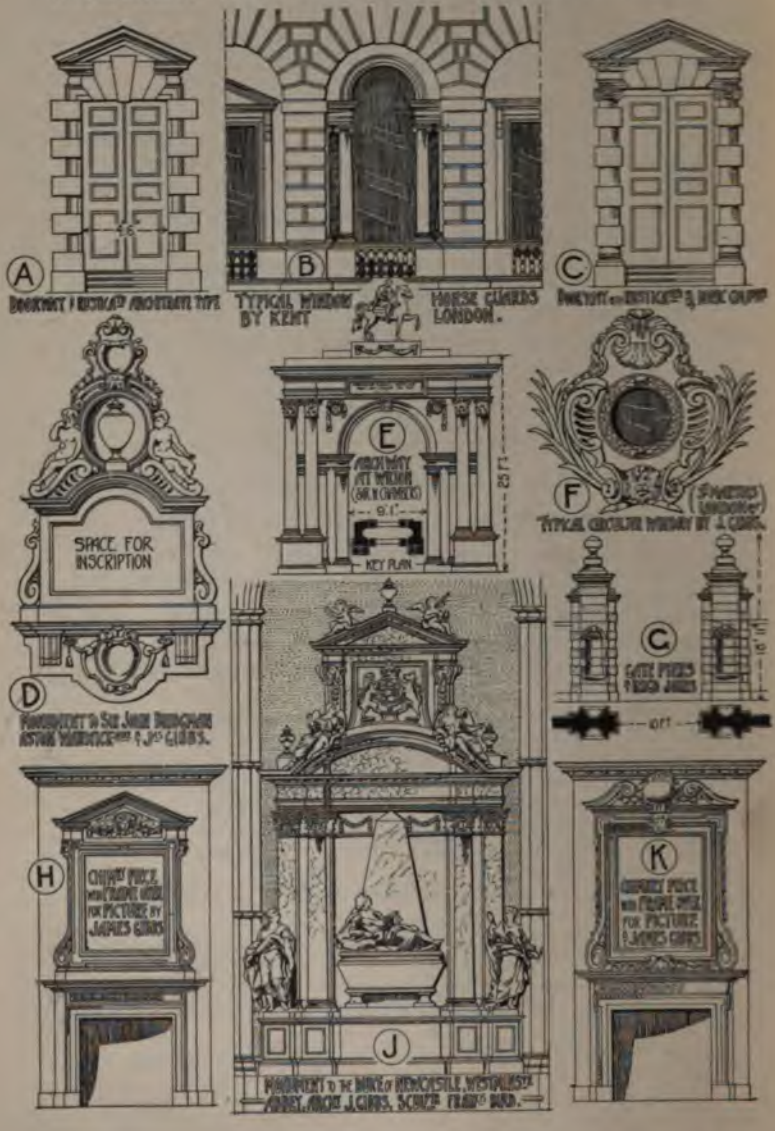
Taylor (A. T.)—"Towers and Steeples designed by Sir Christopher Wren." 1881.

Triggs (H. Inigo) and H. Tanner, jun.—"Some Architectural Works of Inigo Jones." Folio. 1901.

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# ENGLISH RENAISSANCE ORNAMENT II.



## REFERENCE BOOKS—continued.

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Lytton (Lord).—"Devereux." (Historical Novel.)
Scott (Sir W.).—"Woodstock." (Historical Novel.)
Thackeray (W. M.).—"Esmond." (Historical Novel.)
Thackeray (W. M.).—"The Virginians." (Historical Novel.)

# THE NINETEENTH CENTURY.

(1800 TO 1851.)

(THE AGE OF REVIVALS RUNNING CONCURRENTLY.)

## 1. INFLUENCES (see page 392).

## 2. ARCHITECTURAL CHARACTER.

The notes on this period are only to be taken as, in some slight degree, explanatory of the general course which architecture has taken during this century. The beginning of this century saw Palladianism on the decline, and eclecticism was henceforth to be the governing feature of our architecture. Our isolation from the Continent, due to the Napoleonic wars, practically shut off all new ideas in art. On the other hand, the works by Stuart and Revett, and the Brothers Adam and others, published in the last century, were producing that movement in architecture which we know by the name of the *Greek revival*. Somewhat later we feel the full force of the romantic *Gothic revival*, started in the latter part of the last century by Horace Walpole at Twickenham, in the erection of Strawberry Hill, a pseudo-Gothic abbey in lath and plaster.

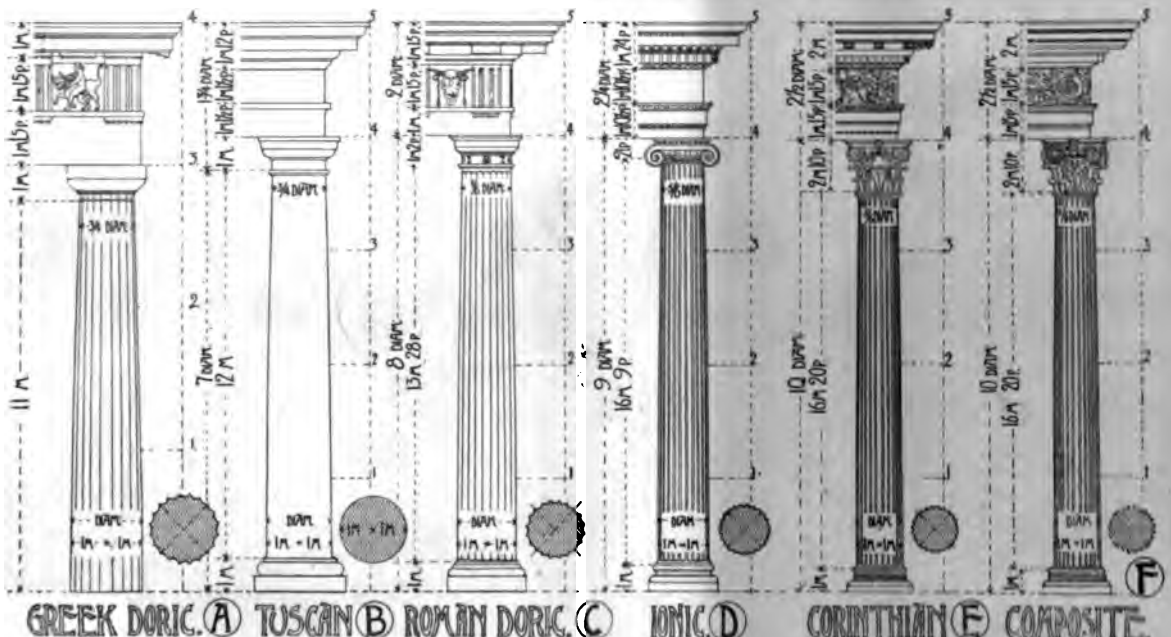
## 3. EXAMPLES.

*Note.*—The Classic and Gothic schools of architecture, which now, for the first time, run concurrently, are placed side by side.

*** The mention of architects still living has been decided upon, not without a certain amount of hesitation, but corrections will be gladly received.

| CLASSIC SCHOOL. | GOTHIC SCHOOL. |
| --- | --- |
| The influence of classical writings on architecture should be noticed, such as Stuart and Revett's | The influence of literature helped on the Gothic movement. Among the more important works are |

# COMPARATIVE DIAGRAMS OF THE PROPORTIONS OF THE ORDERS AFTER SIR W. CHAMBERS.



"Athens" (A.D. 1762), Robert Adam's "Spalato," Inwood's "Erechtheion," Prof. Cockerell's writings, and the publications of the Dilettante Society, etc.

The Elgin marbles were brought to England in 1801–1803 by Lord Elgin, and considerably influenced the public taste in favour of Greek architecture. (For the work of this generation, see Shepherd's "London," with text by the elder Elmes.)

The increased interest in classical architecture thus caused, resulted in the erection of a large number of buildings in which the classic portico was an essential feature.

*H. W. Inwood* (1794-1843): New Church of St. Pancras in 1819, an attempt to copy absolutely the purest of Greek detail, reproducing in many respects the Erechtheion at Athens.

*Nash* (1752-1835), of the Regency, introduced the age of stucco: Haymarket Theatre; Buckingham Palace, since altered by Blore; Regent Street, with Quadrant (for colonnades, since taken down, see old prints). The laying out of Regent's Park in palatial blocks of symmetrical architecture.

*William Wilkins* (1778–1839): University College, London; the National Gallery (fettered with conditions); St. George's Hospital, London; Museum at York; Downing College, Cambs.; The Grange House, Hants (1820).

*Sir Robert Smirke* (1780–1867), a pupil of Sir John Soane: The British Museum (1823–1847) (in which remark the application of the useless but grandeur-giving porticoes to public buildings); General Post Office; King's College, London (1831).

Battey Langley's "Gothic Architecture Improved"; Rickman's "Attempt to Discriminate the Gothic Styles," in 1819; and the writings of Coney, Wild and Cotman, the elder Pugin and Brandon from 1821 onwards.

*John Britton* published "The Architectural Antiquities of Great Britain" (1805-1826), "The Cathedral Antiquities of England" (1814-1835), and numerous other works, which caused increased interest to be taken in mediæval architecture.

Strawberry Hill, completed in 1770, an absurd lath and plaster abbey, by its notoriety is important.

Fonthill Abbey (1822), by James Wyatt, reproduced the monastic buildings of the mediæval period with modern internal arrangements.

St. Luke's, Chelsea (1820), an early attempt at revived Gothic, the barn-like and galleried church of the period being clothed with details, directly copied from old cathedrals and churches.

*Sir Jeffrey Wyatville* (1766–1840) transformed Windsor Castle in 1826. This started a fashion for castellated mansions, internally of the vernacular architecture, and externally battlemented and turreted in imitation of the Edwardian castles. Ex.: Belvoir Castle.

*William Wilkins*: New Court, Trinity College, Cambs, and the New Buildings, King's College, Cambs.

*John Shaw* (A.D. 1776–1832): St. Dunstan's in the West, Fleet Street (A.D. 1831–1832), a fine treatment of a town church, since spoilt by erection of adjacent buildings.

*Augustus Welby Northmore Pugin* (1812–1852), from being employed upon his father's books of mediæval architecture, acquired an extraordinary knowledge of the style. He published a rousing pamphlet contrasting the "degraded" architecture of the day

*George Basevi* (1795–1845), a pupil of Sir John Soane, erected Fitzwilliam Museum, Cambs.

*Decimus Burton* (1800–1881): Screen at Hyde Park Corner in 1824; Athenæum Club, Pall Mall; United Service Club, Pall Mall.

*H. L. Elmes* (1815–1847): St. George's Hall, Liverpool, won in competition, is the most perfect design of the Classical School. The main hall recalls the Roman Thermæ. Externally a colonnade and portico design is handled with great effect. On the death of Elmes, Prof. Cockerell completed the decoration of the interior. The vault was executed in hollow tiles by Sir Robert Rawlinson.

*Sir W. Tite* (1798–1873): Royal Exchange, London.

*Prof. C. R. Cockerell, R.A.* (1788–1863), travelled much in Greece and Italy, and published "The Greek Temples of Ægina and Bassæ." He erected the Taylor and Randolph Institute, Oxford; the Sun Fire Office, Threadneedle Street, London, recently altered; Banks of England at Manchester, Bristol, and Liverpool; and Hanover Chapel, Regent Street (lately demolished).

*Sir Charles Barry* (1795-1860) travelled extensively in Egypt, Greece, and Italy. He abandoned the fashion of useless porticoes, and brought in the "astylar" treatment of design. The Travellers' Club, Pall Mall, shows the influence of the Pandolfini Palace, Florence. It was followed by the Reform Club, Pall Mall, a design inspired by the Farnese Palace at Rome. In Bridgewater House, the third of the series (1849), the influence of the Gothic revival is evidently felt, greater richness is sought after, and the Italian feeling is less strong. His final work, the with what he called the "Christian" style. A new spirit of church building was awakened, and, by the earnest study of old work, a new era in the Gothic revival began. Pugin erected more than sixty-five churches in the United Kingdom, and many in the colonies, besides convents, monasteries, mansions and schools, and made a vast number of designs in collaboration with or as assistant to others. He had not yet arrived at the meridian of his power when he was taken down, at the age of forty, to the silent grave.

In the Gothic revival Pugin sought to restore the fervour of faith and the self-denying spirit which were the real foundations of the artistic greatness and moral grandeur of the Middle Ages.

Amongst the numerous works which he erected, only the few following typical examples can be mentioned:—Roman Catholic churches at Nottingham, Derby, and elsewhere; St. George's Cathedral, Southwark, and St. Augustine's, Ramsgate, 1855. He worked under Sir Charles Barry on the stained glass, metal work, fittings, and ornamental work generally of the Houses of Parliament.

*Sir Charles Barry:* Birmingham Grammar School, 1833; Houses of Parliament, commenced 1840 (No. 221), in which note the symmetry of leading lines on plan, the simplicity of idea, and the character of richness pervading the whole design, which is Classic in inspiration, Gothic in clothing, and carried out with scrupulous adherence to the spirit and detail of the Perpendicular period.

Pugin, under Sir Charles Barry, directed the execution of the fittings, agreeing with the style of the building, and in marked contrast to the previous buildings of the Revival.



221. WESTMINSTER PALACE, LONDON.

Celestia England
1820-1870

Town Hall at Halifax, is a still more ornate example of the Renaissance, the intention being to combine picturesqueness with symmetrical stateliness. Other important works in the country are: Trentham Hall (where landscape gardening of the Italian School is admirably carried out), Shrublands, Highclere, Cliefden, etc.

*Sir James Pennethorne* (1801-1871), assistant to Nash, and influenced by Barry, discarded porticoes as unnecessary, and followed on Renaissance rather than Classic lines: Geological Museum, Piccadilly (after portion of the internal courtyard of the Doge's Palace, Venice); London University, Burlington Gardens; Somerset House, western wing (A.D. 1857); Record Office, Fetter Lane. In his works the orders are sparingly used, and the detail is refined.

The immediate effect of the design of this great building was slight. It was the climax of the first idea of the movement—that of carrying on the Tudor style—so that, at the time of its completion, in 1860, the attention of all was riveted on the earlier phases of mediæval architecture which everyone was engaged in imitating.

Barry marks the close of the Classic Revival. The influence of the Gothicists was now paramount, and the final touch to this influence was given by the 1851 Exhibition, which in the end has done so much to raise the arts and crafts to a higher state of perfection.

## THE NINETEENTH CENTURY.

### (1851 TO THE PRESENT TIME.)

**The Great Exhibition of 1851** caused the raising into prominence of the minor arts, such as metal work, glass painting, mosaics, decoration, sculptured works, and formed a starting point for the arts of the Victorian age. The popularization of architecture by the architectural courts and models of buildings in the various styles aroused an interest in the subject. The publication of "The Seven Lamps of Architecture" and "The Stones of Venice," by Ruskin, in 1851, and the works of Beresford-Hope, Parker, Prof. Willis, Sharpe, Whewell, Rev. J. L. Petit, Brandon, and others, helped on the Gothic movement, while Prof. Cockerell and Prof. Donaldson were writing on the Classic side.

The foundation of the South Kensington (now Victoria and Albert) Museum carried further the influence of the 1851 Exhibition, by its illustration of ancient decorative art, and by the atelier which was there maintained for some years.

The restoration of a large number of cathedrals and churches, and the erection of many new churches, had powerfully aided the Gothic revival, which it was attempted to extend to buildings for every purpose; until the movement met with a severe check

in the decision, acquiesced in by Sir Gilbert Scott, to erect the Home and Foreign Offices (1860–1870) in the classical, or as it was called, the modern style. The design thus dictated to Scott was not likely to be a masterpiece, and it is in fact but a poor compromise between modern French and the traditional Italian ideas of the Renaissance. After this crisis a new movement, due to Norman Shaw, Nesfield, and Philip Webb, then arose in favour of the Queen Anne style, or Free Classic, for domestic buildings, while churches and kindred buildings continued to be erected in a developed style of Gothic architecture.

The work of Shaw, Nesfield, and Webb influenced the design of smaller buildings in suburbs and country.

CLASSIC SCHOOL.

*E. M. Barry* (1831–1880). Covent Garden Theatre; The Art Union Building, Strand; Charing Cross Station. He endeavoured to introduce the Early French Renaissance, as in the Temple Chambers, Victoria Embankment, London.

*Nelson:* Junior United Service Club.

*F. P. Cockerell:* The Freemasons' Tavern.

*Sir Gilbert Scott* (1810–1877): The Foreign Office.

*Sir Digby Wyatt* (1820–1877): Courtyard to India Office.

*Messrs. Banks and Barry:* Dulwich College; Burlington House; the Courtyard and façade to Piccadilly.

*Sydney Smirke:* The storey added to Burlington House; British Museum reading-room, etc.; Carlton Club, Pall Mall, after the library of St. Mark's, Venice.

*Vulliamy:* Dorchester House, London, a Roman Renaissance palace, has unique decorative work inside by Alfred Stevens.

*John Gibson:* National Provincial Banks in London and the provinces, in which the classic orders embracing two storeys are freely introduced; the Society for the Promotion of Christian Knowledge, in Northumberland Avenue,

GOTHIC SCHOOL.

*Sir Gilbert Scott* (1810–1877): Camberwell Church; St. Mary, Stoke Newington; the Martyrs' Memorial, Oxford; church at Haley Hill, Halifax (1855); church at Hamburg; St. George's, Doncaster (1853); St. Mary's Cathedral, Edinburgh; St. Mary Abbotts, Kensington; the Albert Memorial; St. Pancras Station; buildings in Broad Sanctuary, Westminster; many other new churches, houses, and restorations.

*Owen Jones:* St. James's Hall, a modern version of Venetian Gothic.

*Benjamin Ferrey:* St. Stephen's, Westminster.

*William Butterfield:* Keble College, Oxford; All Saints, Margaret Street, London; and St. Alban's, Holborn, all of which show the increasing desire for and study of colour.

*G. E. Street* (1824–1881): St. Mary Magdalene, Paddington; St. James the Less, Westminster, 1861, and the Law Courts, London; house in Cadogan Square; the Convent, East Grinstead; house and church at Holmwood, etc., etc.

*W. Burges* (1828–1881): Cork Cathedral; restored Cardiff Castle, and built his own house in Melbury Road, etc.; the Speech Room Harrow School.

CLASSIC SCHOOL.

London, since altered; Todmorden Town Hall.

*Sir Horace Jones:* The Smithfield Market and Guildhall School of Music.

*Capt. Fowke and Assistants:* The Science College, South Kensington, and the Albert Hall.

*Crossland:* Holloway College, Egham (after Chambord).

*Whichcord:* S. Stephen's Club; National Safe Deposit, E.C.

*Davis and Emmanuel:* City of London Schools.

*Burns:* Duke of Buccleugh's House, Whitehall.

*Alexander Thomson*, of Glasgow, known as "Greek Thomson," erected several buildings at Glasgow in a peculiar severe treatment of modern Greek which had much influence.

*H. Currey:* St. Thomas's Hospital.

*Bodley and Garner:* London School Board Offices, Thames Embankment. The student confined to London may obtain an idea of the early French Renaissance style by an inspection of this building.

*H. Gribble:* The Oratory at Brompton, west front and dome added later. (The Italian style a condition of the competition.)

*W. Young:* Glasgow Municipal Buildings, in the Palladian manner; Gosford Park; War Office, Whitehall.

*Leaming Brothers:* Admiralty Buildings, Whitehall. (The result of an open competition which practically sounded the death knell of Gothic architecture for public buildings.)

*R. Norman Shaw:* New Zealand Chambers, Leadenhall Street, London; country houses as "Wispers"; Lowther Lodge, Kensington, and houses at Bedford

GOTHIC SCHOOL.

*R. Brandon:* Catholic and Apostolic Church, Gordon Square, London, 1859.

*E. W. Godwin:* Congleton Town Hall, Bristol Assize Courts, and Northampton Town Hall, since altered.

*A. Waterhouse:* Manchester Town Hall and Assize Courts; Natural History Museum, 1879; Prudential Assurance Offices, Holborn; Eaton Hall, Cheshire; City Guilds of London Institute, South Kensington.

*Deane and Woodward:* The Oxford Museum, directly the outcome of Ruskin's teaching.

*Philip Webb:* "Clouds," Hampshire; Lord Carlisle's house, Kensington; offices at Lincoln's Inn Fields.

*W. E. Nesfield:* Lodges at Kew and Regent's Park, and many houses.

*J. L. Pearson, R.A.:* Truro Cathedral. His eight London churches:

(1) Holy Trinity, Bessborough Gardens, 1850.
(2) St. Anne's, Lower Kennington Lane.
(3) St. Augustine's, Kilburn.
(4) St. John's, Red Lion Square.
(5) St. Michael, West Croydon.
(6) St. John's, Lower Norwood.
(7) Catholic Apostolic Church, Maida Hill.
(8) St. Peter's, Vauxhall.

Also Chiswick Parish Church, additions.

Astor Estate Offices, Thames Embankment.

*James Brooks:* Churches in Holland Road, Kensington, Gospel Oak, and many others round London.

*Goldie:* St. James's, Spanish Place, London.

*G. G. Scott:* St. Agnes, Kennington; churches at Southwark and Norwich; the Greek Church,

CLASSIC SCHOOL.

Park, Chiswick; Alliance Assurance Office, Pall Mall; houses at Queen's Gate, London; house near Salisbury, in the Wren style; "Craigside," "Dawpool," and "Bryanston," near Salisbury; houses at Hampstead; Harrow Mission Church, Wormwood Scrubs; New Scotland Yard (Anglo-Classic).

*T. G. Jackson:* Work at Oxford; the Examination Schools and additions to colleges in revived Elizabethan.

*Ernest George and Peto* (Influence of Flemish Renaissance): Works at Collingham Gardens and Cadogan Square, London; houses at Streatham Common; Buchan Hill, Sussex, etc.

*H. L. Florence:* Hotel Victoria, Holborn Viaduct Hotel and Station; Woolland's premises, Knightsbridge.

*E. R. Robson and J. J. Stevenson:* Work for London School Board; London vernacular style in red brick dressings and yellow stocks.

*E. R. Robson:* Institute of Water Colours, Piccadilly; the New Gallery; the People's Palace.

*R. W. Edis:* Constitutional, Junior Constitutional, and Badminton Clubs, London.

*T. E. Colcutt:* Imperial Institute; City Bank, London; Palace Theatre; Lloyd's Registry Office, E.C.

*E. W. Mountford:* Sheffield Town Hall; Battersea Town Hall; Battersea Polytechnic; Liverpool Technical Schools and Art Galleries; Central Criminal Court, Old Bailey, E.C.

*J. M. Brydon:* Chelsea Town Hall and Polytechnic; Bath Municipal Buildings, Art Gallery and Pump Room; Government Offices, Westminster.

*J. Belcher:* Institute of Chartered

GOTHIC SCHOOL.

Moscow Road, London; St. Mark's, Leamington, 1879; additions to Pembroke College, Cambridge.

*Basil Champneys:* Girton and Newnham Colleges, Cambridge; the Indian Institute and Mansfield College at Oxford; St. Bride's Vicarage, London, E.C.; Rylands' Library, Manchester.

*Bodley and Garner:* Church at Hoar Cross, Staffordshire; Clumber Church; churches at Hackney Wick, Castle Allerton, Leeds, Folkestone, etc.

*John Bentley:* Roman Catholic church of St. Mary, Watford; the Convent in the Hammersmith Road; New Cathedral, Westminster.

*Sir Arthur Blomfield:* St. Mary, Portsea, and many other churches; Sion College, Thames Embankment; the Church House, Westminster; All Saints', Brighton; St. John's, Redhill; St. Alban, Birmingham.

*Paley and Austin:* Stockport and other churches in Lancashire.

*Douglas and Fordham:* Churches and half-timber work, domestic, in Chester and elsewhere.

*J. D. Sedding* (1837–1892): Holy Trinity Church, Chelsea, marks the raising of the arts and crafts into their proper importance; the Church of the Holy Redeemer, Clerkenwell (a new version of the Wren style); St. Clement, Bournemouth, and domestic work adjacent; Children's Hospital, Finsbury, E.C., and in conjunction with H. W. Wilson, St. Peter's, Ealing, just previous to his death.

*Aston Webb and Ingress Bell:* Birmingham Assize Courts; Insurance Buildings, Moorgate Street, E.C.

*Aston Webb:* Metropolitan Life Office, Moorgate Street; Christ's

CLASSIC SCHOOL.

Accountants; Colchester Town Hall; Eastern Telegraph Co. Offices, Finsbury Circus, and several large houses.

*Aston Webb:* South Kensington Museum; Naval College, Dartmouth.

*H. T. Hare:* Oxford Municipal Buildings; Stafford Municipal Buildings; Henley Town Hall.

*Lanchester, Stewart and Rickards:* Cardiff Town Hall and Law Courts.

GOTHIC SCHOOL.

Hospital, Horsham, Sussex; French Church, Soho Square, W.

*Ernest Newton:* Houses at Haslemere, Wokingham and elsewhere.

*Leonard Stokes:* Churches and schools at Folkestone, Liverpool, and elsewhere.

*W. D. Caröe:* Churches at Exeter and elsewhere.

*G. H. Fellowes Prynne:* Churches at Staines, Dulwich and elsewhere.

During the last fifty years the pages of the professional journals have contained most of the noteworthy buildings erected, and it is a source of much pleasure and instruction to go carefully through these records of the developments which have taken place. They seem to show that a style or manner in architecture is being slowly worked out, which may, it is hoped, resist all revivals and fashions, and become the free expression of our own civilization, and the outward symbol of our twentieth century progression.

## British Colonial Architecture.

The development of architecture in the great self-governing colonies, such as Australia, New Zealand and Canada, has to a large extent followed the lead of the mother country. Buildings have been and are erected both in the Classical, Renaissance and Gothic styles, and as in England, Classic is principally though not wholly reserved for secular work, Gothic for ecclesiastical work, and a homely type of design resembling our own Georgian style for smaller domestic works of the country-house type. Some of the larger works are of importance and are an evidence of the political growth of those colonies in which they are situate. Among those in the "classic" school are the MacGill University, Montreal, and the Parliament House, Melbourne; and a large number of banks, insurance offices, city halls, law courts, etc. In the Gothic school the Parliament House at Sydney, Melbourne Cathedral, and the Parliament House at Ottawa are outstanding examples.

# ARCHITECTURE IN THE UNITED STATES.

"Built in the old Colonial day,
When men lived in a grander way,
With ampler hospitality;
A kind of old Hobgoblin Hall,
Now somewhat fallen to decay,
With weather stains upon the wall
And stairways, worn and crazy doors,
And creaking and uneven floors,
And chimneys huge, and tiled and tall."—LONGFELLOW.

THE study of the progress of architecture in a new country, untrammelled with precedent and lacking the conditions obtaining in Europe, is interesting. But room is not available for more than a cursory glance.

During the eighteenth century (1725–1775) buildings were erected which have been termed "*colonial*" in style, corresponding to what is understood in England as "Queen Anne" or "Georgian" (see page 413).

In the "New England" States wood was the material principally employed, and largely affected the detail. *Craigie House, Cambridge* (1757), is typical of the symmetrical buildings. It has elongated Ionic half-columns to its façade, shuttered sash windows, the hipped roof and the dentil cornice of the "Queen Anne" period; the internal fittings resemble that of Adam and Sheraton.

The early buildings were mainly churches or "meeting houses," erected after the manner of Sir Christopher Wren. *St. Michael at Charlestown* (1752) (the probable architect being Gibbs, the designer of the Radcliffe Library at Oxford), *St. Paul's, New York* (1767), *Christ Church, Philadelphia* (1727–1735), were among the early churches.

In Virginia, as at Brandon, Shirley, etc., and Maryland, the homes of the tobacco planters, many of the best examples of country houses were erected.

*Independence Hall, Philadelphia* (1729–1735), the *Old State House at Boston* (1747), and the *Town Hall at Newport* are other well-known buildings.

The Spanish rule in Florida and California is responsible for many forts, churches and mission houses, which bear resemblance to the Spanish Renaissance buildings.

Between the Declaration of Independence (1776) and the war of 1812, owing to the erection of new State capitals, a more monumental type was evolved. Among these buildings may be mentioned:—

The original *Capitol at Washington* (1793–1830), by Thornton, Hallet and Latrobe.

*Virginia University* (1817), by Jefferson, recently destroyed by fire, and rebuilt in a similar manner by McKim, Mead and White, and the *Massachusetts State House at Boston* (1795), by Bullfinch, recently enlarged and restored.

The Classical Revival (1812–1870) of Europe reached the States somewhat late, but produced similar results.

Among the buildings were the *Wings and Dome of the Capitol at Washington* (1858–1873), by Walters, which became the model for many public buildings. The *Customs House at New York*, the *United States Mint, Philadelphia*, the *Treasury at Washington, Boston Custom House*, several State capitols, the *Town Hall, Philadelphia*, and the *Capitol at Albany*, begun in 1871.

The Gothic Revival was confined principally to churches (1840–1876). *Grace Church* (1840) and *St. Patrick's Cathedral, New York* (begun in 1858), both by Renwick; *Trinity Church, New York* (1843–1846), by Upjohn; the *State Capitol at Hartford* (1875–1878); the *Museum at Boston* (1876–1880); the *Academy of Fine Arts, Philadelphia* (1876); *Memorial Hall, Harvard College* (1870–1877), are examples of this revival.

**Recent Architecture.**—The industrial activity which followed the civil war (1861–1865), and the devastating conflagrations of Chicago (1871) and Boston (1872) all helped to create greater interest in architecture, while such exhibitions as that at Philadelphia (1876) and Chicago (1893) have aided in enlarging the national ideas.

Two architects, *H. H. Richardson* (1826–1886), and *R. M. Hunt* (1827–1895) also helped the movement, both in very different ways. Richardson, although a pupil of the École des Beaux-Arts, worked in the non-academic French Romanesque manner, and greatly influenced his contemporaries and successors.

*Trinity Church, Boston* (1877), *Pittsburgh County Buildings*, the *Albany City Hall*, work at *Harvard University*, and many charming small libraries round Boston, are his well-known examples.

R. M. Hunt has been specially employed in the erection of large town and country houses, among which may be mentioned, *Houses at Newport*, "*Biltmore*"—a country *château* in North Carolina—and many city buildings, including the *Lennox Library, New York* (1871–1877), and the additions to the *Metropolitan Museum of Art, New York.*

The abnormal progress of American industries during the last 25 years, the general use of lifts and fireproof construction and the cost of land has caused the erection of many important town buildings of great height.

In some the walls have been constructed of a framework of steel, supporting masonry brick or terra-cotta inclosing walls. Such buildings are essentially modern in character, but are not necessarily ugly in design. Among the most important are the *Schiller Theatre, Chicago*, by Messrs. Adler and Sullivan, a most successful and chaste design as applied to a high building, which is in reality a tower, *The Monadnock Building* and the *Masonic Temple at Chicago*, by Messrs. Burnham and Root, and many others.

The *Ames Building* and *Tremont Temple* in Boston; ***Madison Square Theatre*** in New York, and the enormous buildings of the leading newspapers, insurance offices and trusts are notable.

**Domestic Architecture.**—The houses of small type have been very successfully treated, wood being largely employed in the country districts.

The plan of these houses often shows great originality, the staircase, sitting-hall, piazza, and a picturesque grouping of steep roofs, are main features.

Among later buildings of note are ***St. John the Divine, New York; President Grant's Tomb***, Riverside Drive, New York; ***Chicago Public Library***, by Shepley, Rutan, and Coolidge; ***Congressional Library*** at Washington, by Petz, Smithmeyer and Green; ***New York Public Library***, by Carrère and Hastings; the ***State House, Providence***, by McKim, Mead and White; ***University of Pennsylvania***, Philadelphia (various buildings), by Cope and Stewardson; ***Libraries at Washington and Atlantic City***, by Ross and Ackermann; the ***Ponce de Leon Hotel at Florida***, in the Spanish Renaissance style, by Carrère and Hastings, and the ***Boston Public Library***, a modern Renaissance design by McKim, Mead and White, which has had a good deal of influence in the designing of recent library buildings. The same architects have erected very scholarly and refined buildings at the Colombia University at New York.

The designs of the various buildings for the Chicago Exposition (1893) differed largely from expectation. Many looked for some new development in either iron or terra-cotta, or perhaps

wood alone, being in a country which is the centre of the lumber market; but "extremes meet," and an exposition of architecture on the wilds of the western prairie turned out to be a collection of well-studied Parisian designs.

It is to be hoped that the imitative element will not cause these great classic designs to be reproduced elsewhere for town halls, museums and other buildings, but that American Architects already advancing so rapidly along certain new lines of departure, will value the lessons they teach without copying their exact forms; if not there will be another great American classic revival of the French type which will go far beyond any craze we have had in England and do a great deal to retard the true progress of art in America.

In conclusion, it is certain that there is a great future for American Architecture if only the architects will, as much as possible, express themselves in the language of their own times. No advance can be made by the copying of ancient buildings, as has been done in certain cases, constituting a retrogressive movement, and showing a sad want of the appreciation of the true value of art.

The great historic styles must of course be well studied, not for the forms with which they abound, but deeper still for the principles which they inculcate, in the same way that the literature of the past is studied in order to acquire a good literary style. If architecture is thus studied a good result will be assured, and the architect will produce works reflecting the hopes, needs, and aspirations of the life and character of the age in which he lives.

A

# HISTORY OF ARCHITECTURE

ON THE

# COMPARATIVE METHOD.

## PART II.

## GENERAL INTRODUCTION TO THE NON-HISTORICAL STYLES.

THE non-historical styles—Indian, Chinese and Japanese and that of Central America—are those which developed mainly on their own account and exercised little direct influence on other styles. They can thus be studied independently, and need not interrupt the story of the evolution of European Historical Architecture dealt with in Part I., which would probably be the case if they were placed in their chronological order. The position which they should occupy in a History of Architecture is, however, a matter of doubt, but it is thought that by keeping them quite separate from the historical styles, it will make for greater clearness to the student.

Saracenic architecture is also placed in Part II., as its connection with European architecture is not generally considered important, although it certainly influenced it to some extent.

Mention should be made of the late Mr. Fergusson's investigations on the subject. He was the first to piece together the story of Indian and Eastern architecture, not only by his own patient researches, but by utilizing the vast amount of material brought to light by General Cunningham and a score of others, who had been working mainly in connection with government departments. Mr. Fergusson's chronology is founded on his own labours and such investigations, and is the one which has been followed.

The study of Indian and indeed of all Eastern art enlarges our view, since it presents many novel forms to which we are unaccustomed, and which, doubtless because of their unusual character, often strike one as ugly or *bizarre*. It is, however, a question of taste and education as to whether this impression is really due to this unusual character, or whether we should not consider them beautiful if we were accustomed to them.

"Use is second nature;" and Indian architecture was no doubt beautiful to those who were engaged on it and to whom it was meant to appeal.

It is certain that in no other style was such patient care and labour bestowed on the minutest detail. From an architect's point of view, these non-historical styles can scarcely be so interesting as those which have progressed on the solution of constructive problems, resolutely met and overcome, as was the case in Europe from the Classic period to that of the Renaissance.

In India and the East, decorative schemes seemed to have outweighed any such problems.

The student should visit the Indian Museum at South Kensington, which possesses a most valuable collection of portions of original buildings, casts of details, and models of temples, houses, etc.



# INDIAN ARCHITECTURE.

"More thought than woe was in her dusky face,
For she was prophesying of her glory:
And in her wide imagination stood
Palm-shaded temples and high rival fanes
By Oxus or on Ganges' sacred isles."—KEATS.

## 1. INFLUENCES.

**i. Geographical.**—India—a three-cornered country—occupies an area fifteen times greater than Great Britain. Bounded on the North by the Himalayas on the North-West by the Suleiman mountains, and on the East by the heights of Southern Assam, the remaining portion is bounded by the sea. The coasts, deficient in good harbours, may have helped to keep the people aloof from extraneous influences; but by her position she was destined to receive the human overflow from the ancient breeding grounds of Central Asia.

The rivers, as the Nerbudda, Ganges, Krishna, Jumna, etc., were important as affording employment to thousands of boatmen, and were utilized for rafting down timber used for building from the immense forests. By forming trade routes or cheap highways they assisted in the formation of great cities. The Ganges-Jumna Valley contains some of the principal cities of architectural importance. Delhi (the "Rome of India"), a collection of ruins of different cities, covers nearly 50 square miles. It was the capital of the Mogul Emperors (see Saracenic). Its architectural importance was probably gained through being at the junction of four historic roads, *viz.*: that from the Lower Ganges, the Hindu Koosh, the Indus Valley and the Gulf of Cambay. Delhi is therefore the centre of India, as London is of England.

The rock-cut temples on the Western Ghâts are attributed by some to the influence of Egypt, Persia, and Assyria, as they contain capitals and columns of similar design. The proximity

of the Greek Bactrian Kingdom in the north-west had considerable classical influence on the architecture, primarily of the Gandhara district, and thence over Northern India generally. On the east coast the country, being comparatively open, was accessible to the spread of civilization, and this being so, the ancient dynasties of Southern India fixed their capitals there. On the west coast, a narrow strip of lowland only intervening between the Ghâts and the seaboard caused the inhabitants to remain to this day aloof from civilizing movements.

The map (No. 222) taken from Choisy's "Histoire de l'Architecture," indicates the different type of building characteristic of each portion of India.

**ii. Geological.**—The centre of the Peninsula and the hill country generally abound in excellent building stone, which had considerable influence on Indian architecture from the earliest times. Mention should be made of the pink marble of Rajputána, with which the principal buildings at Delhi and Agra were constructed, also the trap of the Deccan, the sandstone of the Godavari, and the Nardadá, and the granite of Southern India.

At Hullabîd, an indurated potstone of volcanic origin is found, so close grained as to take a polish.

In West India, the rock-cut *Chaityas* of the Buddhists were rendered possible by the geological formation, being composed of horizontal strata of trap formation, uniform in texture and of considerable thickness, rising from the ground as perpendicular cliffs, into the face of which the temples were cut.

At Mahavellipore and Ellora, the Dravidian monolithic rock-cut free-standing temples, known as "Raths," were hewn out of the Indian amygdaloidal trap formations of these districts. Terra-cotta seems to have been employed in early times, and may have influenced later work in producing the exuberance of ornament, rendered easy by the pressing of plastic clay into moulds.

A wooden origin is traceable to nearly all the Buddhist architectural forms. Teak is the principal wood of the country, being found in large forests on the Eastern and Western Ghâts, the Himalayas, etc. Other woods are ebony, and the bamboo of the jungle, etc. Palms (which afford food, drink, clothing and building material to the native) grow mostly on the lowlands of the coast.

In the low-lying plains of Bengal, brick was used to some extent, but the alluvial soil of this district does not afford good material for brick-making.

Lime for building is obtained by burning limestone and Kankar, a nodular form of impure lime found in most river valleys, and from shells plentifully found in the marshes.

**iii. Climate.**—India lies mostly within the tropics. Two

great periods, wet and dry, divide the year. Thus, the climate being tropical, flat terraced roofs, used for coolness, exercise, or sleeping, predominate, as in Assyria and Persia.

The general use of the great fan or *punkah* in the hot season is significant of the intense heat which prevails, which influenced the size and forms of architectural openings.

The pierced screen or lattice window in Indian and all Eastern art is a decorative feature due to persistent sunshine, and acting as a fine architectural screen against the excessive light and heat.

Storage of water being important for irrigation and against the dry season, rendered necessary the number of canals, reservoirs, and tanks in connection with temples, palaces, etc. These form such special features in Indian architecture.

**iv. Religion.**—The **Early Vedic** religion, of which the "Rig-Veda"—a collection of poems addressed to the gods—forms the literary memorial, had existed long before the rise of Buddhism in the sixth century B.C.

*Buddhist.*—Sakya Muni (Buddha—the "Enlightened"), the founder of Buddhism, was born in B.C. 623, and died B.C. 543, and from the age of thirty-five spent his life preaching religion.

Asoka (B.C. 272–236) adopted and made Buddhism the state religion, as Constantine did with Christianity. It remained so for nearly a thousand years, *i.e.*, from B.C. 250 till A.D. 750. From the foundation of Buddhism—the first great bond of union among the Indian races—can be traced the historical architecture of India, an architecture of religion, in which the sacred buildings were originally not temples to gods but monasteries or memorial shrines to holy men.

Relic worship—an essential feature of the Buddhist religion—necessitated the erection of the many important topes or dagobas containing a relic of a deceased saint, such as a tooth, bone, toe-nail, or hair.

The tenets of Buddhism are inscribed on the monuments chronologically at Buddh Gaya, Bharbut, the topes and gateways at Sanchi and elsewhere, and, indeed, few other records exist.

Tree and serpent worship, which was introduced by the non-Aryan peoples of India, still prevails, and is responsible for many decorative emblems, as seven-headed serpents, etc. The celebrated "Bo-Tree" at Anuradhapura, in Ceylon, has been worshipped for over two thousand years.

*Jaina.*—This religion, which rose to importance about A.D. 1000, seems to have been founded on Buddhism. A statue of one of the twenty-four Jinas or saints (with distinctive sign, as a bull, elephant, monkey, crocodile, rhinoceros, lion, etc.) is placed in each temple. The extraordinary number of image cells in one

building, numbering 236, has led some to suppose that the Jains believed the saint was honoured in direct ratio to the number of his statues.

*Hindu.*—The modern Hindu religion, generally known as the Bráhmanical (the name of the priestly order), dates from about A.D. 750. It was the joint product of Vedic, Bráhmanism and Buddhism, and was in reality a social league resting upon caste, a complicated system of division of the people according to race, occupation, and geographical position. It broadly divided all classes of the community into: (*a.*) Bráhmans or priests, law-givers, poets, and scientists; (*b.*) Rájputs; (*c.*) Vaisyas, or Aryan agricultural settlers and craftsmen; (*d.*) Súdras or serfs. Each caste became, as it were, a trade-guild, to whose care the manufactures, muslins, decorative art and treatment of precious stones of mediæval India were due. The Bráhmanical idea on the transmigration of souls did not encourage tomb building. Monastic life ceased with the decay of Buddhism, monasteries being replaced by hypostyle halls, serving as shelters for pilgrims and having sacred lakes occasionally surrounded with porticoes.

For the Mahometan religion in India, see under Saracenic.

**v. Social and Political.**—The people of India have never become amalgamated, but have continued to consist of several races, under conditions practically unchanged for centuries, and mostly independent of each other, hence the different phases of architecture and the want of unity shown therein.

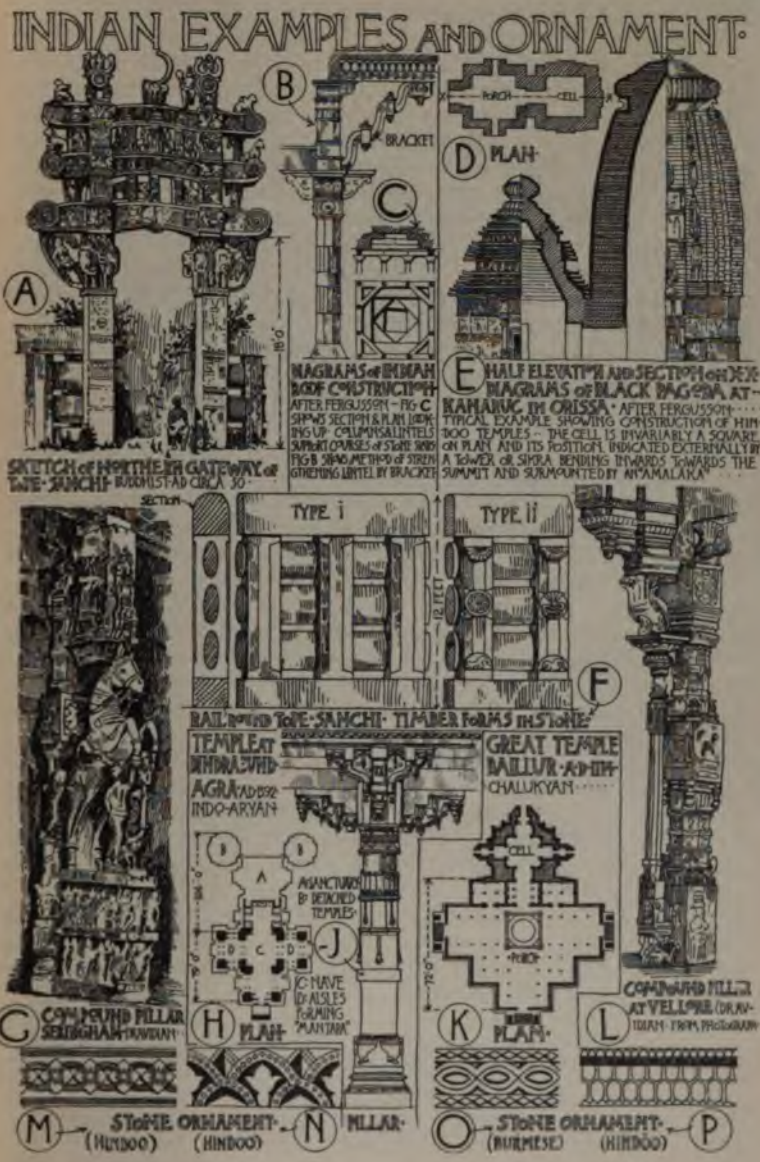
Broadly speaking, the people consist of: (*a.*) The non-Aryan tribes, or aborigines; (*b.*) the Aryan or Sanskrit-speaking race, now called Bráhmans and Rájputs; (*c.*) Hindus, a mixed population formed of the above; and (*d.*) Mahometans.

The tenure of land by feudal princes or lords was an important factor. Such lands produced enormous revenues, which were spent in the erection of religious monuments, largely for self-gratification.

Among the most intellectual class the spiritual and contemplative aspects of life overpowered the practical and political, and influenced architecture in avoiding constructive problems.

Architecture, as a recorder of events, is silent from the expiring years of Buddhism, A.D. 750, to the commencement of the eleventh century, between which periods Indian history is also a blank. The "Mahawanso" of Ceylon, however, forms a history of that island from B.C. 250.

The great Buddhist monastery of Nalanda, to the south of Patna, accommodating 10,000 priests, and existing for the first five hundred years of our era, corresponded to the European monasteries of the Middle Ages, attracting and disseminating all


INDIAN EXAMPLES AND ORNAMENT
A
B
BRACKET
C
D
PLAN
PORCH
CELL
E
SKETCH OF NORTHERN GATEWAY OF TOPE · SANCHI · BUDDHIST AD CIRCA 30
DIAGRAMS OF INDIAN ROOF CONSTRUCTION AFTER FERGUSSON – FIG C SHOWS SECTION & PLAN LOOKING UP COLUMNS & LINTELS SUPPORT COURSES OF STONE ROOFS FIG B SHOWS METHOD OF STRENGTHENING LINTEL BY BRACKETS
HALF ELEVATION AND SECTION OF DIAGRAMS OF BLACK PAGODA AT KANARUC IN ORISSA · AFTER FERGUSSON · TYPICAL EXAMPLE SHOWING CONSTRUCTION OF HINDOO TEMPLES – THE CELL IS INVARIABLY A SQUARE ON PLAN AND ITS POSITION INDICATED EXTERNALLY BY A TOWER OR SIKRA BENDING INWARDS TOWARDS THE SUMMIT AND SURMOUNTED BY AMALAKA
SECTION
TYPE i
TYPE ii
12 FEET
F
RAIL ROUND TOPE · SANCHI · TIMBER FORMS IN STONE
TEMPLE AT DHRAUVID AGRA AD 852 INDO-ARYAN
GREAT TEMPLE MALLUR · A·D 1111 CHALUKYAN
A SANCTUARY B DETACHED TEMPLES
C NAVE D AISLES FORMING "MANTAPA"
CELL
PORCH
G
COMPOUND PILLAR SERINGHAM TANJORE
H
PLAN
J
PLAN
K
PLAN
L
COMPOUND PILLAR AT VELLORE (DRAVIDIAN) FROM FERGUSSON
M
STONE ORNAMENT (HINDOO)
N
PILLAR (HINDOO)
O
STONE ORNAMENT (BURMESE)
P

the learning of the age. The Chinese pilgrims to India in A.D. 400 and 630 have left interesting descriptions of their visit to this and other buildings. The *Jains* regarded temple building as a social virtue, leading to a happy future state. Thus private individuals endowed such buildings, which were numerous rather than grand.

The absorption of human personality under the caste system was not favourable to domestic architecture, which has remained in a rudimentary state.

Sir W. Hunter's "Brief History of the Indian Peoples" forms an excellent *résumé*, which should be studied by all who require an insight of Indian art and life.

**vi. Historical.**—Alexander's conquests in North-West India (B.C. 327), brought that country into touch with European and Western Asiatic art, thus Greek, Assyrian and Persian influences are apparent on the architectural detail in that region. From the time of Alexander to the time of Vasco da Gama (A.D. 1498) Europe had little direct influence on the East.

The proximity of the Greek Bactrian Kingdom (B.C. 323-130), which, along with India, fell to Seleukos Nikator, one of Alexander's generals and founder of the Syrian monarchy, exercised considerable classical influence over Northern India.

The Mahometan invasion in the thirteenth century led to architectural features being adopted in India, while Mahometan architecture was influenced by contact with the native styles.

The Sanskrit grammar of Pánini, compiled about B.C. 350, is still the foundation of the study of the Aryan language. The epic poems known as the "Mahábbárata," or chronicles of the Delhi Kings up to B.C. 1200, and the "Rámáyana," or story of the Aryan advance into Southern India about B.C. 1000, are works by the Bráhmans that may be compared to Homer's "Iliad" and Virgil's "Æneid."

The Tartar or Scythic inroads, from B.C. 126 to the fifth century A.D., succeeded those of the Greeks.

During A.D. 1746–1858 the foundation of British rule in India was progressing, and from the latter year the annexation to the British Crown, effected by Royal proclamation, has caused an intermingling of European and native art.

## 2. ARCHITECTURAL CHARACTER.

The various Indian styles are divided with approximate dates and localities, the periods, however, frequently overlapping, as follows:—

(1.) The **Buddhist** style (B.C. 250–A.D. 750). India (North of the Dekkan) and Ceylon.



224. KARLI.

Interior of Rock-cut Cave.



(2.) The **Jaina** style (A.D. 1000–1300), with later revivals. The whole of India from the Himalayas to Cape Comorin.

(3.) The **Hindu (or Bráhman)** style, which may be subdivided into

(*a.*) The *Northern Hindu* or Bráhman style (or North Indian) (A.D. 600 to the present time).

(*b.*) The *Chalukyan* style (or Central Indian) (A.D. 1000–1300).

(*c.*) The *Dravidian* style (or South Indian) (A.D. 1350–1750).

(1.) **Buddhist Architecture.**—As only rock-cut examples are existent, it is from these we have to judge of what the structural temples may have been. The rock-cut temples have but one external façade, which is in the face of the rock, and is, therefore, mainly an interior architecture, interesting in showing an undoubted imitation of timber originals. Wooden forms were repeated long after their significance was dead (compare Greek Architecture, page 42). With the exception of the one façade, the ornament was lavished on the interior columns and roof, the former of which were short and overladen with ornament, the latter being generally semicircular, with ribs showing a timber derivative (Nos. 224 and 225).

(2.) **Jaina Architecture.**—The Temples have the small square shrine-cell, lighted from the door only, and crowned with a high pyramidal tower, with curvilinear sides, forming an imposing feature. In front, forming an entrance porch, is the hall, with columns having bracket capitals and sometimes angular struts; such capitals support a dome or domes, invariably built in horizontal courses of stone. Thus the domes, often of different heights in the same building, exert no lateral thrust, and are easily supported on columns, without the aid of buttresses, which occur in the Roman and Byzantine styles. The interior *ensemble* thus presents a light and graceful character, further enhanced by the method of planning, consisting of an "in and out" or cruciform shape, also characteristic (see No. 229). Sculptured ornament, of grotesque and symbolic design, covers the whole structure and is bewildering in its richness, leaving little plain wall surface, and differing essentially from European work. The temples were picturesquely perched on mountain tops or nestled in secluded valleys, the Jains valuing rightly the effect of environment on their architecture.

3. **Hindu (or Bráhmanical) Architecture** varies in its three special styles. All three have the small shrine-cell and preceding porches, the same excessive carving and sculpture, and impress by this evident tribute of labour to the gods. The principal Bráhmanical Temples, like those of Egypt, show progressive

additions of sanctuaries and inclosures, grouped around or attached to the original shrine. Beyond this, the grandeur of their imposing mass produces an impression of majestic beauty. The effect depends almost wholly on richness of surface and outline, rather than on abstract beauty of form, and contrasts very strongly with Grecian architecture. (*a.*) The *Northern Brâhman*, in comparison with the Dravidian style, has a curved pyramidal roof to the vimana instead of a storeyed one, and is without columns to the preceding porch. (*b.*) The *Chalukyan* style is affected by its northern and southern rivals, taking features from each without losing its special character. The star-shaped plan and curved pyramidal tower are in contrast with the storeyed towers of the Dravidian style. (*c.*) The *Dravidian* style has the Vimana or cell crowned by a horizontal system of storeyed towers, each storey ornamented with cells. The *gopuras* or gateways to the inclosures recall the pylons of Egyptian façades (No. 6), and the Choultries, or Halls of a thousand columns, are characteristic and akin to the hypostyle halls (see page 19).

## 3. EXAMPLES.

(1.) BUDDHIST ARCHITECTURE (B.C. 250–A.D. 750). The monuments can be divided into:—

1. Stambhas (or Lâts).
2. Topes (or Stûpas).
3. Rails.
4. Temples (or Chaityas).
5. Viharas (or Monasteries).

1. **Stambhas, or lâts,** were columns on which were carved inscriptions, the top being crowned with emblems, such as the elephant, lion, etc. Such columns are often reminiscent of Persepolitan architecture (No. 12). The best known is the Lât at Allahabad, B.C. 250.

2. **Topes, or Stûpas** (Sanscrit *sthupa* = a mound), were mounds erected (*a*) to commemorate some sacred spot; (*b*) to contain sacred relics (then known as dagobas = receptacle for relics).

The principal group is that known as the Bhilsa Topes, north of the Nerbudda River, and the best known of the group is the **Sanchi Tope** (B.C. 250–A.D. 100). It is a solid mound of brick-work, faced with stone and cement, and contains the relic near its base. It is 106 feet in diameter, 42 feet high, crowned by a "Tee" or relic casket, and is placed on a platform 14 feet high,



225. AJUNTA.

Façade of Rock-cut Cave.

surrounded by a procession path, railing and four gateways. An excellent model is in the Indian Museum, South Kensington.

Other groups are at Sarnath (near Benares), Buddh-Gaya, Amravati (remains in the Indian Museum), Jarasandha, etc.

3. **Rails** were often used as inclosures to the Topes. They clearly indicate a wooden origin (No. 223 A, F), and were elaborately ornamented with sculpture. The rail and gateways surrounding the **Sanchi Tope** (of which there is a full-size cast in the Indian Museum (No. 223 A)) are the best known, and date from the first century of our era. The height is 35 feet and width 30 feet. The symbolic sculpture is of historic interest: it tells the life story of Buddha, and illustrates the worship of relics, trees, the law, battle scenes, etc. These gateways are the prototypes of the numberless **pailoos** mentioned in the section on China and Japan.

4. **Temples, or Chaityas** (B.C. 250–A.D. 750), are all excavated out of the solid rock, thus presenting only one external face. They recall the rock-cut tombs of Upper Egypt (No. 5). The normal type resembles in plan an English three-aisled cathedral with circular apse, which contained the shrine, at the end furthest from the entrance. The roofs are hewn to a semi-circular form, and have ribs resembling timber work. In many, the frontal screen of horse-shoe form, through which the only light was admitted, was of wood. The principal groups are hewn in the face of the Western Ghâts, to the east of Bombay, at **Bhaja** (B.C. 250), **Karli** (B.C. 78), **Nassick** (B.C. 129), **Ellora**, **Ajunta** (No. 225), and **Elephanta** (No. 226).

The cave at Karli (No. 224), resembles Norwich Cathedral in general arrangement and dimensions. It is 126 feet long, 45 feet wide, and 45 feet high. The columns separating nave and aisles are octagonal, with elephant capitals, from which springs the circular roof.

5. **Viharas, or Monasteries.**—The rock-cut examples are in proximity to the Chaityas. The normal type is a central square space, with or without columns, surrounded by chambers for the priests, and occasionally containing a sanctuary for the shrine. In **Gandhara** (North-West India), General Cunningham has opened out some structural monasteries, probably of the fourth century A.D., some of which contain courts for shrines. Their details show Greek and Byzantine influence: the acanthus leaf (No. 28 J), the Byzantine cube-cap (No. 61), and the Corinthian capital are met with.

In **Ceylon** are numerous remains of topes, chaityas and viharas, principally at **Anuradapura**, the capital from B.C. 400–A.D. 769, and **Pollonarua.**

## (2.) JAINA ARCHITECTURE (A.D. 1000–1300), with later revivals.

The examples mostly belong to the great age of Jaina architecture from A.D. 1000–1300, although a revival took place in the fifteenth century, corresponding to the classical Renaissance in Europe. The style is generally admitted to have been founded on Buddhist architecture. The monuments, mainly religious, were erected in all parts of India, the principal examples being in the North.

The normal type of temple is a square cell or vimana, lit from the door only, roofed with a Sikra or Pyramidal storeyed tower in receding stages, recalling the Chaldæan Temples (No. 11 A, C). The cell contains the cross-legged seated figure of the saint. In front of the vimana is a columned hall or portico of varying extent, generally cruciform on plan. In the centre of the hall is a pointed dome supported on eight columns with bracket capitals and raking struts, the octagon thus formed being brought to a square by the four angle columns which complete the characteristic Jaina plan (No. 223 C). In the larger monuments the temple is placed in an inclosure, against the wall of which the image cells open on to the internal courtyard.

In Northern India the principal monuments are at **Mount Abu** (No. 227), **Palitana** (No. 228), **Girnar** (in the Gujerat district), **Parisnath, Gwalior** (No. 229), **Sadri** and **Khajuraho.**

At **Mount Abu**—a granite plateau 5,000 feet above the sea, interspersed with luxuriant vegetation—are two important examples in white marble. That erected A.D. 1032, by Vimala Sah (No. 227), has a splendid portico hall, the columns having bracket capitals (No. 223 B), from which raking struts in marble appear to support the architrave. The interior of the dome is sculptured with concentric rings of ornament, having at the base sixteen statues and in the centre a richly carved pendant or ornament, recalling those at Caudebec, in Normandy, or in Henry VII.'s Chapel, Westminster.

The most fully developed building is perhaps the **Temple at Sadri**, on the eastern side of the Aravulli Mountains. Resting on a lofty substructure, approximately 200 feet square, it is surrounded by a range of eighty-six cells, each crowned with a pyramidal roof. There are five shrines, one being central and one at each angle, and four open courts for the admission of light. Twenty domes, 24 feet in diameter, supported on 400 columns, are placed symmetrically in sets of five, forming a Greek cross on plan. The centre one is three storeys in height and 36 feet in diameter, and is formed as usual in horizontal stone courses.



226. ELEPHANTA.

Interior view of Rock-cut Cave.

The external appearance, with the domes of different heights and the pointed sikras, presents a rich and varied character, with the mountains as a background.

Modern Jaina temples are mostly tinged with Mahometan influence, having bulbous domes and foliated pointed arches. In these the sikra is often absent.

In India the normal type varies; open courtyards containing immense statues are cut out of the solid rock, as the statue, 70 feet in height, at Sravana Belgula.

## (3.) HINDU (OR BRAHMAN) ARCHITECTURE.

### (*a.*) NORTHERN HINDU (A.D. 600 to the present time).

The normal type of plan consists of the **vimana** or cell crowned with curved pyramidal roof, and the porch without columns crowned with stepped roof in storeys. Each façade has rectangular projections in the centre, which increased in depth as the style developed, until they formed the point of a square on plan. In addition to these two chambers, others are added in more important examples. The large inclosures and gateways of the Dravidian style are wanting. **Orissa**, on the east coast, contains a remarkable series of monuments dating from A.D. 500–1200. The ancient city of **Bhuvaneswar** contains some hundreds of examples. The best known is the **Great Temple** (A.D. 617–657), quoted as the finest in India. It is a four-chambered example; every stone on its façades is carved, the courses being deeply rusticated. The principal vimana is crowned with the usual northern high curved pyramidal roof with melon ornament and finial.

Other examples are at **Kanaruc** (No. 223 E) (the Black Pagoda, ninth century), and **Puri** (the four-chambered temple of **Juganât**, A.D. 1174), the latter being placed in a large double inclosure surrounded by a wall 20 feet high.

In **Dharwar**, on the western coast, are examples in which pillars are employed, as the Temple of Papanetha, A.D. 500, influenced by Dravidian architecture.

Important groups exist at **Chandravati**, in Rajputana (A.D. 600), **Baroli** (A.D. 750), and **Udaipor** (A.D. 1060). At **Khajurâho** (A.D. 954–1000) is a group of thirty important temples, of which that dedicated to **Kandarya Mahadeo** is the most important. It is a two-chambered example, placed on a well-proportioned stylobate, with three rows of sculptured figures, half life-size, nearly one thousand in number. The sikra is enriched by the addition of sculptured representations of itself—a favourite Indian method.

Modern monuments exist at Chittore, Gwalior, Kantonugget (A.D. 1704), and Amritzar (A.D. 1704), the sacred metropolis of the Sikhs.

**Civil Architecture.**—Palaces, tombs, and ghâts (landing places) abound. The ghâts lining the great rivers, such as the Ganges, are typical Indian features; they are used by the Hindus as bathing places, and consist of long ranges of steps, stopped by kiosks and backed by buildings with ornamental façades, used as shelters, or temples.

## (*b.*) CHALUKYAN ARCHITECTURE (A.D. 1000–1200).

The special features are the placing of the temple on a terrace 3 or 4 feet high, the star-shaped plan of the *vimana*, or idol cell, and the formation of its roof as a straight-sided cone in richly ornamented steps, with crowning vase ornament (No. 230). Elaborate pierced marble slabs are placed in window openings. The use, in certain cases, of walling stones without mortar should also be mentioned.

The province of Mysore contains the principal monuments, as at **Somnathpûr** (A.D. 1043), **Baillûr** (A.D. 1114), and **Hullabîd** (A.D. 1224), (No. 231). The double temple at the latter place is placed on a terrace 5 feet high, the temples being side by side. In front of each is a detached pillared porch containing a shrine for the idol. The walls are exceedingly rich in sculpture, and have friezes 700 feet long, carved with numerous representations of elephants, lions, horsemen, birds, and bas-reliefs of scenes representing the conquest of Ceylon.

## (*c.*) DRAVIDIAN ARCHITECTURE (A.D. 1350–1750).

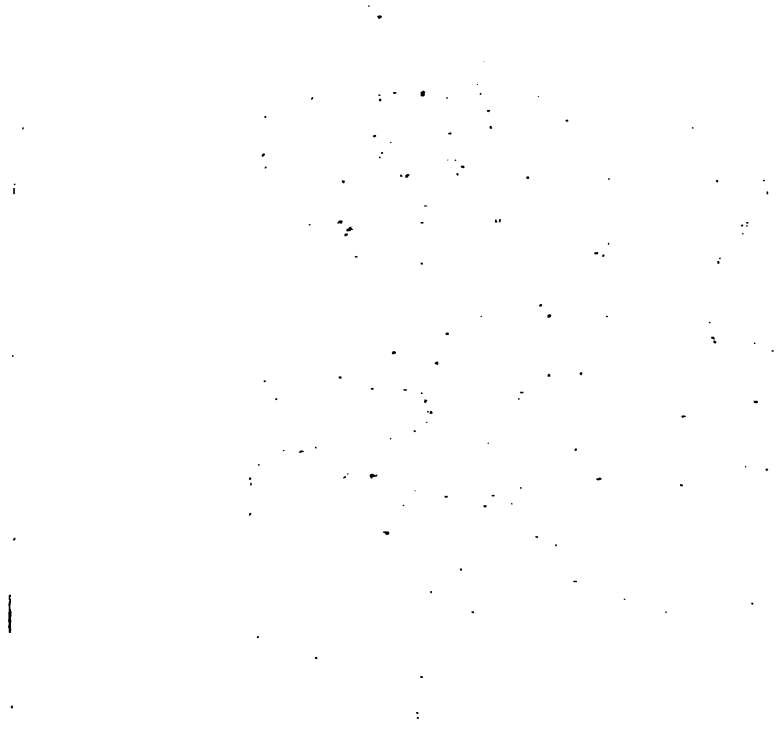
**Raths.**—The rock-cut examples known as "Raths" at **Mahavellipore** (near Madras), and **Ellora** (A.D. 750–950), are peculiar (No. 232). They differ from other rock-cut examples, being monolithic free standing temples, the surrounding rock being cut away so that external façades are visible.

**Temples.**—The normal type, as in the Jaina examples, has a square *vimana* to contain the image of the deity, and is crowned with a many-storeyed pyramidal roof; in front is a *Mantapa* or porch (No. 233). In addition are the *Choultries* or halls of 1,000 columns, placed close to the Temples, and the characteristic "*Gopuras*," or gate pyramids (No. 234), forming entrances to the inclosures which usually surround the shrines. In conjunction are planned the shrines, lakes (or tanks of water for religious purposes), and flights of steps; such are often grouped with little



228. PALITANA.

The great Chawmukh Temple.





229. GWALIOR.

The great Sas Bahu Temple in the Fort.

regard to symmetry, and inclosed by a high wall, as in Egyptian temples.

**Tanjore** (fourteenth century), with its thirteen-storeyed highly-enriched pyramidal sikra (No. 233), **Mandûra** (A.D. 1623–1645), with its celebrated *Gopura* (No. 234), and *Choultrie*, 333 feet by 105 feet, and columns with life-sized sculptured figures attached; **Seringham** (seventeenth century), with its fifteen great gopuras, **Tinnevelly**, with its double temple and hall of 1,000 columns, **Conjeveram, Vellore** (A.D. 1350), **Tarputry** (No. 235), and **Chillambaram** (seventeenth and eighteenth century), are the best known monuments.

## 4. COMPARATIVE.

*Note.*—In order to assist the student, the analysis of the three styles—Buddhist, Jaina, Hindu (or Bráhman)—is taken in one table.

### A. Plans.

(*a.*) **Buddhist.**—The remains of Buddhist *Chaityas* (Temples) are all hewn out of the rock, and therefore have only one external façade. In plan they resemble Christian Cathedrals in having three aisles formed by two rows of piers; the sanctuary, around which the aisle is carried, is semi-circular.

The *Viharas* (*or monasteries*) are also rock-cut. They consist generally of a central hall surrounded on three sides by cells for the priests. In later and larger examples, columns are introduced in the central space to support the rock overhead. In the most important examples the sanctuary is placed in a special apartment, and provided with a screen of columns as at Nassick.

(*b.*) **Jaina.**—Temples owe much of their attractiveness to their environment, by being picturesquely grouped on mountain tops or in wooded valleys. In plan they consist of a square cell containing the image of the Jina, roofed with a high curvilinear pyramidal Tower called a "Sikra." In front was a pillared portico, crowned by a pointed dome usually supported on eight pillars forming points of an octagon, and brought to a square by inserting four angle columns (No. 223 c). The columns are extended so as to make the whole structure cruciform on plan, which is apparent externally.

The planning of the dome on the octagonal base causes the width of the central nave to the aisles to be in the proportion of 10 to 7. A somewhat similar treatment has been adopted in the successful interior of St. Stephen's, Wallbrook (No. 215).

In important examples, the temple is placed in a great open

court, round which cells are planned. At Girnar there are seventy of such cells, each containing a cross-legged statue of the *Jina*, to whom the Temple is dedicated.

(*c.*) **Hindu (or Bráhman).**—The Hindu Temples are similar in plan to the Jaina temples, with local differences—for instance, *Dravidian* Temples have, in addition, the characteristic *Choultries*, or halls of 1,000 columns, and are generally surrounded by a wall, inclosing lakes or tanks of water for priestly purposes.

*Chalukyan* Temples are usually star-shaped on plan.

B. **Walls.**—The walls are constructed principally of granite, stone or marble with which the country abounds, the massive blocks being sometimes laid without mortar. Plain walling seems to have been avoided, and sculpture is employed in a bewildering and confusing way (see Ornament, page 455). The characteristic Eastern treatment of decorating with sculptures the whole surface of the walls is employed in all three styles.

In the Dravidian style the gopuras or gate pyramids resemble, in their massiveness only, the pylons of the Egyptian Temples (see No. 6).

C. **Openings.**

(*a.*) **Buddhist.**—In rock-cut examples, the horseshoe form occurs on the façade (No. 225), forming, as it were, one great eye, and being the only opening for light. Within this arch was usually an open decorated framework of wood, probably used as a screen to the glaring Eastern sun; thus the subdued light was thrown on the shrine from behind the spectator, producing a favourable effect of light and shade on the close-set columns of the interior (No. 224).

(*b.*) **Jaina.**—Openings are normally square-headed. Domes, when employed, were formed of horizontal courses, as in early Greek architecture (No. 14 A). Such a system was necessary in the case of domes supported on slender columns, which could sustain no outward thrust. In their pillared porches, horizontal stone architraves rested on the bracket capitals, and a characteristic Eastern feeling was produced by the strone struts supporting the architraves (No. 227), a feature which is evidently derived from a timber form (No. 223 B).

An extension of the bracket capital is sometimes applied to walls, lintels being supported at intervals by detached brackets built out in horizontal courses.

The struts, already mentioned, were occasionally filled in with ornament, thus forming a triangular-headed opening (No. 228).

(*c.*) **Hindu.**—Flat-headed openings are the usual type, but variations are caused in roofs by the use of bracketing shafts



230. UMBER.

The Hindu Temple of Tagat-Sarwan.





231. HULLABID (PROVINCE OF MYSORE).
The East Door of the Double Temple.

supporting purlins of stone, on which inner brackets were placed, thus gradually reducing the span, till stone slabs could roof the apartment, as at the Dravidian temple at Chillambaram.

The *Chalukyan* buildings have pierced window slabs, as at *Baillûr* and *Hullabîd* (No. 231). Such are formed in star-shaped patterns ornamented with foliaged bands or with mythological subjects. These slabs, filling in the whole opening, are a great contrast to other styles, being somewhat similar, however, to Byzantine and Saracenic buildings.

D. **Roofs.**

**Buddhist.**—In the early rock-cut chaityas roofs, semi-circular in section, are excavated in the rock and ornamented with wooden ribs or stone imitations of them (Nos. 224 and 225).

**Jaina.**—The *sikra*, or stone roof, which crowned the idol-cell had a high curved outline crowned with a melon ornament and finial (No. 228). Such a curved outline, Mr. Fergusson suggests, may have been produced by following the outline of an internal pointed dome, formed with slabs of stone in horizontal courses. Jaina porches are crowned with (1) roofs formed of flat slabs of stone, or (2) pointed domes formed in horizontal courses.

(1.) The flat slab roofs were evolved from the simple square slab of stone resting on architraves supported on four columns. Larger spaces were roofed by using a succession of triangular slabs as a base for the original square slab to rest on (No. 223 C). Still larger spaces were roofed by the insertion of two extra columns on each face to support the long architrave, and making twelve columns in all to each compartment, the intermediate columns forming an octagon on plan.

(2.) The pointed Jaina dome seldom exceeds 30 feet in diameter. It is invariably formed in horizontal courses (compare the Treasury of Atreus at Mycenæ, No. 14). Such domes, if of any size, are of necessity pointed or conical in section (No. 223 D, E), so that a single stone can crown the top. When placed on the octagonal plan as indicated above, the triangular portions (or pendentives from the octagon to the circle) are formed by a circular stone cornice supported at the re-entering angles by projections from the capitals (No. 227). The bearing of the architrave was apparently lessened by the use of bracket capitals and struts, although it is doubtful if these have any constructive value (Nos. 223 B and 227).

The decoration of such domes followed the horizontal lines of the construction, the ornament being arranged in concentric rings, the central or top stone forming a pendant.

**Hindu.**- *Dravidian* examples have the roof covering the *vimana*

of the storeyed pyramidal type (No. 233), normally carried to a considerable height and carved with representations of itself along each well-defined storey.

*Chalukyan* examples have the towers either of the storeyed Dravidian type, following the curvilinear outline of the Northern Hindu examples, or form a straight-sided cone arranged in steps.

E. **Columns.**—Indian columns are most characteristic features, and are unlike those in any other style. The origin of their form is unknown, but it seems certain that they come of a wooden prototype. The shaft is as much ornamented as the capital and base (No. 223 L). The bracket capital (No. 223) is a peculiar Indian feature taking a variety of forms. No systems of simple well-known types existed, as in Greece or Rome (No. 23).

**Buddhist** columns are often octagonal on plan (No. 224). In the great rock-cut Chaityas at Karli, Bedsa and elsewhere, they are stumpy, closely set together, thus screening the wall behind, which, of course, had no openings. They thus gave the necessary light and shade to the interior, as did the columns to the exterior of a windowless Greek temple. The numerous forms of capitals, resembling in certain instances the Assyrian and Persepolitan examples, are bewildering. Sculptured lions, horses, or elephants, supporting men, women, and the "chakra" or Buddhist wheel occur, as at Bedsa. In others, as at Karli, torus or Dutch cheese mouldings ornamented with palm leaves occur under a capital of a coarse Roman-Doric type (No. 226).

In North-west India, in the Gandhara district, **Greek** or Byzantine influence produced capitals with delicate **acanthus**-leaf carvings.

**Jaina.**—Columns are a special feature and exhibit **great variety** of design. The capitals are of the "bracket" **type, probably** derived from a timber original. Sometimes, as at **Mount Abu** (No. 227), they are superposed, the upper ones **supporting an** architrave which is upheld in the centre by stone **struts resting** on the lower capital.

**Hindu.**—In the Dravidian *choultries*, there was **great scope** for the inventiveness of the Hindu craftsman. The **capitals are** of the bracket type, and in some instances **not more than two** columns in a building are alike.

Some, as at Mádura, have life-sized figures of **saints, or Yalis** (weird lion-like monsters) attached to them (No. 223 C), **forming** contrast to Greek caryatides (No. 28 M). In **other cases, a** compound pier of a sturdy and light column is **employed** (No. 223 I).

F. **Mouldings.**—Normally these are of a bulbous swelling



232. ELLORA.

The "Rath" (Temple of Kailos), showing scarp of rock, &c., an example of Monolithic Free





233. TANJORE.

The great Temple from the N.E., showing the thirteen-storeyed pyramidal sikra.



outline, those to the columns often lacking refinement. A form made of overlapping rectangular slabs is frequently used in the bases and capitals of columns and dagobas. In other instances, as at Bedsa, a semi-circular open-work moulding, recalling basket-work, is employed. The plain torus is used, and the oval lense-like mouldings into which the cross pieces of the "rails" are cut, are used as deep horizontal bands of ornaments, taking the place of mouldings proper (No. 223 F).

G. **Ornament.**—This is principally confined to sculpture carried out with a profuseness unknown in other styles. Executed principally in hard stone, and having little plain wall surface to frame it, it forms a monument of patient labour, perhaps unequalled.

The sculpture is so bound up with the peoples' religion and mythology, of which indeed it forms the mirror, that the two cannot be considered separately. In Jaina architecture, each of the twenty-four Jinas (see Religion, page 441) had a distinctive sign which was utilised by the sculptors. The trident, shield, and chakra (or wheel), the "rail" ornament (copied from the Sanchi tope) and imitations of window fronts and façades are also repeated on the fronts of the early Chaityas, as at Bedsa, Nassick, etc.

A most characteristic feature was the representation on a façade or tower of numerous small carved representations of itself. This method was also used in Assyria, and the remains often enable a fanciful restoration to be made.

Paintea decorations or frescoes were often employed, as at Ajunta, the walls of the cave being left plain for the purpose.

The use of sculptured figures as a means of decoration was a later phase.

The evolution of the sculptured umbrellas surmounting the Dagoba (or shrine) is interesting as being the prototype of the nine-storeyed pagodas of China. On the Gateways at Sanchi (a plaster copy is at South Kensington Museum) are represented legendary events from the life and religion of Buddha, the worship of trees and relics, and warlike scenes (No. 223 A). The three, five, or seven-headed Naga or serpent is frequently used. Besides the animals already mentioned, others such as horses, lions, hansas (or sacred geese), form favourite subjects with Buddhist sculptors, and are a striking contrast to the *motifs* of Mahometan sculpture (see page 492).

*Note.*—In further India (or Indo-China), as Burma, Siam, Java, Cambodia, are temples, monasteries and pagodas, many of which are of great size and importance, but of which space does not admit of more than passing reference.

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234. MANDURA.

The West Gateway and Gopura beyond.





235. TARPUTRY.

Portion of Entrance to the old Temple.



# CHINESE AND JAPANESE ARCHITECTURE.

"See what a love shell,
Small and pure as a pearl.
* * * *
Frail, but a work divine,
Made so fairly well,
With delicate spire and wall,
How exquisitely minute,
A miracle of design."

## 1. INFLUENCES.

### i. Geographical.

*The Chinese Empire* — comprising China proper, Thibet, Mongolia, and Corea—is larger than the whole of Europe. It is for the most part mountainous, possesses four great trading rivers by which merchandise is carried, facilitating internal commerce; such is also furthered by the network of canals for irrigation and navigation which are spread over the low-lying provinces, and which, with the navigable rivers, form the principal highways of China. The "Grand Canal," extending from Tientsin to Hangchow, is 600 miles in length. The coast has excellent harbours, which must have assisted the intercourse with India and Assyria, etc., and the consequent influence of their architectural forms. The Chinese pagoda was a direct imitation of an Indian prototype, or may have been derived from the pyramidal many-storied buildings found in lower Chaldæa.

*Japan* presents many points of resemblance to Great Britain: both have highly indented coast lines with good harbours; both are insular empires well situated for commerce and lying opposite populous continents; both are at the head of great oceanic waterways, the one of the Pacific, the other of the Atlantic; and both are warmed by ocean currents producing equable temperatures.

### ii. Geological.

*China.*—The abundance of metals, coal, salt, iron, and copper, have always made China one of the richest of countries.

China, as primitive India, has employed wood for building; such was rendered possible by the vast forests of bamboo and pine which existed in ancient China. Pekin, first made the Imperial capital about A.D. 1260, has suffered severely from earthquakes in 1662 and 1731, when important buildings were wrecked. Brick-making is considered by many to have been introduced from the West, in imitation of those found in the ruins of Mesopotamia.

Large beds of porcelain clay are found in the province of Che-kiang and elsewhere. In city walls the brick is usually about 18 inches long, and in buildings a small grey-coloured brick is often used. Tiles, plain, glazed, and coloured, are almost exclusively used for the roofs, yellow being the Imperial colour. Stone is used for bridges, gateways and public works, and marble for balustrading around tombs and important buildings.

*Japan.*—The prevalence of earthquakes has favoured wooden construction, in which the Japanese exhibit scientific ingenuity in the framing together of the various parts.

Stone in Japan is not naturally stratified, hence it is often used in polygonal blocks, particularly for the lower part of walls, on which is erected the upper wooden construction.

Forests occupy four times the area of the tilled land, with a greater diversity of trees than any other country in the world: bamboo is largely used in house construction.

### iii. Climate.

*China.*—By the geological formation of the mountains, which run east and west, the sea winds moderate the extremes of temperature. North China has a short but frosty winter and warm and rainy summer. During the monsoons very heavy rains occur, which influenced such features as the widely projecting roof with steep surfaces admitting of the easy discharge of rain-water. Roofs are turned up at the eaves to admit light without the heat of the sun (Nos. 238 and 240).

Fires being principally used for domestic purposes and not for comfort, chimneys are unimportant features and seldom provided, the charcoal or wood fire being allowed to eject its fumes into the cooking apartments.

*Japan.*—Houses, where possible, face the south, as a protection against cold. The deeply projecting eaves protect from the summer sun and the high inclosing walls of courtyard against



236. The Emperor's Palace, Pekin.



the winter wind. In summer the moveable casement windows and partitions forming the fronts of the houses, and offering little resistance to the penetration of heat, are removed, leaving them entirely open to the breezes.

### iv. Religion.

There are three religions:

In China { Confucianism (Confucius, born B.C. 551, died B.C. 475).
{ Buddhism introduced from India about A.D. 90.

In Japan { Taoism, or Sintuism.
{ Buddhism introduced A.D. 550.

Confucianism is a code of practical moral doctrines and conduct, and can scarcely be called a religion. An absence of important religious structures is probably the result of there being no dominant priesthood; this absence has been the wonder of travellers, because the Chinese have probably been civilized as long as the Egyptians, who, mainly in consequence of their religious ideas, created an architecture unequalled in its grandeur.

Temples and shrines erected to Buddha or Confucius, though numerous, are unimportant. In addition, the poor family has its altar and household gods and the wealthy family its ancestral hall of worship.

Ancestral worship is so profound and leads to such a veneration for graves that the Chinese will plough around them for generations without being guilty of the sacrilege of destroying them

In Japan, Sintuism is the national religion, but Buddhism is also prevalent. The extraordinary number of images of every possible size and material is to be remarked.

In Japan the Buddhist religion, with its mysterious symbols and awe-inspiring forms, acted on the artistic Japanese nature, ready to depict the beautiful forms around him; thus demons, monsters and conventional representations are found in conjunction with the birds and landscapes of the changing seasons.

### v. Social and Political.

The Chinese government is autocratic, the Emperor being the head of State and Church, and the provinces being governed by mandarins. The Emperor is at once the worhipper and priest of the important Pekin temples, an example of the old idea of priest and king.

The nobility is not hereditary, property being divided equally among children at death; thus there is little family pride in such, causing, as in England, the erection of castles and residences with which the life of the family could be associated.

The "guilds" into which many trades or crafts are formed have

an important influence. They date from about A.D. 600, and resemble in constitution the mediæval guilds of Europe.

A point affecting domestic architecture is the law which regulates the forms and dimensions of the residence for each class of the inhabitants. The social condition of the Indian and West Asiatic countries which were governed by monarchs supreme in authority was productive of architectural works tending to the glorification of such monarchs.

China, on the other hand, has been termed the country of the middle classes—*Literati*, small proprietors and merchants—whose buildings indicate special regard to utility and whose temples express merely the desire to accommodate the present needs rather than to show to future generations those feelings of eternal sublimity that mark the styles of Egypt and Greece.

In Japan tea drinking is held to have had its influence on the industrial arts, due in part to its spread in the fifteenth century, and the formation of tea clubs, thereby producing a demand for domestic utensils and leading to a special treatment of such buildings and their gardens. Government decrees as to size and arrangement of buildings exercised influence.

Up to the revolution of 1868 the country was governed by the Shogun or chief vassal of the Mikado, at which period Western parliamentary ideas were introduced.

### vi. Historical.

*China.*—The early history of China is wrapped in the mists of antiquity.

*The Chow Dynasty.*—Che-Hwang-te, first universal Emperor (B.C. 246–210), built the "Great Wall, B.C. 214, and constructed roads, canals, etc.

*The Eastern Han Dynasty* (A.D. 23–220).—During the reign of Ming Te, Buddhism was introduced from India.

*The Western Tsin Dynasty* (A.D. 265–590).—During the reign of the Emperor Sze-Ma-Yen, the Emperor Theodosius sent ambassadors to China (A.D. 284).

*The Tang Dynasty* (A.D. 618–907).—Tai-tsung (A.D. 618–649) purchased the alliance of the Turks as the Emperor Justinian had done in A.D. 558, and regained Eastern Persia up to the Caspian Sea. Ambassadors from Persia and Rome came to China in A.D. 645.

The Emperor Woo-Tsung (A.D. 841–847) abolished Temples and Monasteries.

The Emperor E-Tsung (A.D. 860–874) revived Buddhism.

During the tenth century the Chinese Emperor invaded Chaldæa, penetrating to the Mediterranean, and established a



237. SHANGHAI.

A typical Chinese Pagoda.



protectorate in Mesopotamia for more than sixty years. It is possible that Chaldæan temples were the prototypes of many Chinese structures and even of pagodas in receding stages. From this expedition some date the art of enamelled brickwork as employed in China.

*The Mongul or Yuen Dynasty* (A.D. 1259–1368).—Under the Emperor Kublai (A.D. 1259–1294) China reached her greatest extent, and with the exception of Hindustan, Arabia, and Western Asia, all the Mongul princes as far as the Dnieper were tributary. The Emperor undertook public works and patronized literature. It was during his rēign (A.D. 1260) that the Persian workmen introduced the art of making blue and white porcelain.

*The Ming Dynasty* (A.D. 1368-1644). — Nankin, the capital, afterwards changed to Pekin. Japan invaded Corea in 1592.

*The Manchu Tartar Dynasty* (A.D. 1644 to the present day).—The shaved head and pigtail are emblems of Tartar sovereignty. At the beginning of the seventeenth century the German Jesuits influenced studies of the first Emperors. Kang-he (A.D. 1661–1721) added Thibet to the Empire and published the Dictionary of the Chinese language. Keen-lung (A.D. 1735–1795) invaded Burmah, Cochin-China, and Nepaul, and crushed the Mahometan rebellion. He received Lord Macartney as first ambassador of George III. In 1840 war was declared by England against China; this marks the period of the influence of European intervention. In 1873 the foreign ministers obtained the right of audience with the Emperor.

*Japan.*—The Emperor Zinmu, B.C. 660, contemporary of Nebuchadnezzar. From that time onward the government of the country was undertaken by the Mikado, or spiritual Emperor, the Shogun, or temporal Emperor, being Commander-in-Chief. Till A.D. 1543 Japanese history is purely local, but in that year the Portuguese landed and commenced trading, and in 1549 St. Francis Xavier introduced Christianity. In 1638 Christianity was interdicted and isolation from foreign countries was effected. In 1854, however, after an isolation of over 200 years, treaties of commerce were made with foreign nations. This period marks the commencement of the influence of European art on Japan. In 1868 the present Mikado, the 122nd of his line, suppressed the Shogun and reigned as supreme constitutional Emperor.

## 2. ARCHITECTURAL CHARACTER.

**China.**—The architecture is a faithful index of the civilization of the country, which seems to have been stationary from the earliest times.

Throughout its course, the architecture appears to have been subject to little progress, and it has exerted but little influence on other styles. Bright colouring forms an important part, applied permanently in the shape of glazed tiles or majolica work. The architecture of China and Japan is pre-eminently one of wood—cedar, pine, chesnut or bamboo—which is framed up to receive the sliding screens which run in grooves (No. 238).

The Pagodas, or towers, of receding storeys, with gaily-coloured curved roofs to which bells were attached, and adorned with figures in high relief at the angles, form a characteristic class of structure (No. 237).

No distinction is made between civil and religious architecture. In China, the temple is only a better kind of house, which latter is provided with an altar.

**Japan.**—The Japanese buildings have a special character of minuteness, both in architectural features, carving, and decoration, contrasting forcibly with those of other nations—as Egypt and Rome—in which the great idea has been vastness of size and grandeur of proportion.

Japanese buildings have a quality of refinement and delicacy, and their wooden constructions are framed together with such artistic skill as to render them akin to the effect of joinery (No. 240).

Chinese and Japanese architecture are especially notable for curved sloping roofs, forming a contrast with that of Egypt and India, where flat terrace roofs predominate. The projecting roofs supported on a succession of small brackets form a most striking feature, being ornamented with dragons and other fabulous animals.

The accessories of Japanese Temple architecture, such as the gateways, belfries, font sheds, etc., form an important setting to the main structure, as do also the quaintly laid-out gardens with their summer-houses, rustic arbours, and fishponds.

## 3. EXAMPLES.

**Temples and Monasteries.**—The Temples of Heaven and Earth (Agriculture) (No. 238 D) at Pekin, have been described by the late Mr. Simpson. The former contains two altars with sloping roofs in stages, and is placed in an open space, one mile square, surrounded by a triple inclosure in which are the priests' lodgings. (For normal type of temple see page 466.)

In the plains of China such buildings are usually planned on symmetrical lines. In mountainous Japan, use is made of steps and terraces, wooded backgrounds and long rows of stone or bronze standard lanterns to produce a picturesque effect.

# CHINESE AND JAPANESE EXAMPLES.




SECTIONAL VIEW on A-B CANTON MERCHANT'S HOUSE.




FIRST FLOOR PLAN.

GROUND FLOOR PLAN.




ALTAR OF AGRICULTURE. PEKIN.




PAGODA TOWER. HANKIN.

PAVILION SUMMER PALACE. PEKIN.




TEMPLE OF MIYO-JIN. KANDA. TOKYO. JAPAN.




ELEVATION OF TEA-HOUSE. JAPAN.

TYPICAL JAPANESE MIDDLE CLASS HOUSE.




PUBLIC BATHS JAPAN.



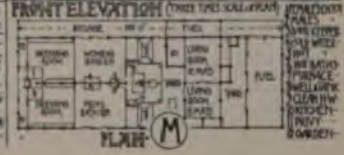

FRONT ELEVATION (THREE TIMES SCALE OF PLAN)




PLAN

DOTTED LINES SHOW MATS 6'0" WHICH REGULATE SIZES OF ROOMS. THE WALLS ARE CONSTRUCTED WITH SLIGHT POSTS & WEATHER BOARDING PLASTERED INTERVALLY PAPER SLIDES FORM PARTITIONS 6'0" HIGH WITH BARRED PIECE OVER. VERANDAH IS ENCLOSED WITH SHUTTERS. LIVING ROOMS ARE USED FOR SLEEPING. ENTRANCE. PARTITION. SLIDING DOORS. KITCHEN. SCULLERY. PROPERTY FOR SEWING PERSONAL ACCENTS & PAINTED SHELVES AND CUPBOARDS. SPACES GARDEN.

PAINT ELEVATION (THREE TIMES SCALE OF PLAN)




PLAN

Accessory buildings, such as pagodas, stage for sacred dances, and storehouses, are grouped around.

**Palaces.**—In the past, as capital succeeded capital, palaces for the Emperors and officials have been erected. Such were often of great extent. The Summer Palace at Pekin, destroyed 1860, of which a Pavilion is shown in No. 238 F, was an important example. It covered twelve square miles and contained some thirty residences for the Emperor and his ministers, among these the "Hall of Audience," 120 feet long, 42 feet wide, and 20 feet high, formed the principal apartment. The whole group was set among pleasure gardens, lakes and grottoes on a magnificent scale.

**Pagodas**, derived from Indian prototypes, are characteristic. They vary from three to thirteen storeys in height, a usual number being nine (No. 237). They are constructed in various materials, from wood to cast iron, are solid or hollow, the latter having staircases leading to each floor level. Pagodas had formerly a religious significance, but those erected latterly are secular in character, sometimes being monuments of victory. They are usually polygonal in plan, thus enabling the junctions of the roofs in each storey to be elaborately ornamented. The *Pagoda at Nankin* (destroyed in 1856), called the Porcelain Tower, was a well-known example (No. 238 E). It was an octagon 40 feet in diameter and 200 feet high. The eaves of the roofs to each storey curled upwards, and from the angles bells, numbering 150, were hung. It was built of brick, coated with coloured slabs of green glazed porcelain, on which its effect mainly depended. It contained about 2,000 images. Pagodas are distributed in considerable numbers over the country. The Tung-chow Pagoda (a thirteen-storeyed example), the Tang-chow Pagoda (a nine-storeyed example), both at Pekin, the "Flowery" Pagoda in Canton, the Hang-chow Pagoda, the Sao-chow Pagoda (nine storeys), and others at Shanghai, Ningpo, and Nankin, are well-known. A good example is in Kew Gardens, and there are many models in the India Museum, South Kensington.

In **Japan** the Pagodas are mostly five-storeyed, square in plan, and about 150 high; they are attached to the important temples. The lower storey contains the images and shrines, the upper ones serving as "belvederes." They were introduced with Buddhism from China, but those now standing mostly date from the seventeenth century; the upper storeys have projecting roofs with bracketed cornices supporting bronze bells.

The **Pailoos** of China (No. 239) are a common feature, and have a family resemblance to the Torans of India as the Sanchi tope (No. 223 A), and those of Japan. They were erected as memorial arches in memory of deceased persons, generals,



239. A Pailoo.

A typical structure erected as a Memorial.



philosophers, or of virtuous widows. They are constructed of stone, or more frequently of wood, and have one or three openings, formed by posts supporting horizontal rails bearing an inscription and crowned with bold projecting roofs, covered with gaily-coloured tiles.

**Bridges** are important structures in a country abounding in rivers and canals. The greater proportion have piers supporting arches formed, not of radiating voussoirs, but as a horizontal arch, the slabs often measuring 5 feet in length, 2 feet wide, and 6 or 8 inches in thickness.

**Tombs,** in consequence of the great reverence for the dead, are finished with care, and have respect paid to them. They are either conical mounds cut in the rock, or structural. Those of the Ming Dynasty (A.D. 1368–1644), to the North of Pekin, are entered through triumphal gateways of white marble and an avenue, a mile in length, of colossal monolithic figures, thirty-two in number, and 12 feet in height, representing camels, horses, priests, elephants, lions, griffins, etc. Each of the thirteen tombs consists of an earthen mound, half-a-mile in circumference, and supported by a retaining wall 20 feet high, and seem founded on such monuments as the Sanchi tope in India. Family tombs are frequently of horseshoe form in plan, cut into the hillside, with mythical animals guarding the entrance.

**Houses** are chiefly of wooden or glazed porcelain construction, formed to a large extent of moveable partitions which slide in framework. There is generally only one floor (No. 238). The roofs are of steep pitch, with boldly projecting eaves, and have highly ornamented ridges of coloured and glazed tiles with the ends turned up, or are finished with grotesque animals or fantastic ornaments. The framing is effected by the bamboo and other woods, and is frequently painted red, green, or blue. The houses owe much of their character to their environment, being placed in gardens arranged to suggest some natural landscape, with fountains, artificial rocks, woodland scenery, lakes, flower beds, hanging plants, bridges spanning watercourses and stepping stones, which are seen in the models at the India Museum at South Kensington.

Town houses of any importance are made up of a collection of isolated pavilions surrounded by small gardens. Three principal divisions occur: (*a*) The vestibule or porter's lodge, giving on to the street; (*b*) the audience chamber and family rooms; and (*c*) the kitchen and servants' rooms (No. 238 A).

In Japan the employment of wooden houses and the consequent fear of fire has had much influence in producing the detached character which some of the larger examples possess. In the

plan of a middle-class dwelling (No. 238 J, H), the general arrangement is shown. In such an example the walls are constructed of slight vertical posts and horizontal beams covered with weather-boarding. The portion giving on to the verandah has sliding shutters between the posts. The internal partitions are formed of paper slides, 6 feet high, with plastered or wooden frieze over.

**Tea Houses** (No. 238 K) are characteristic institutions, generally of wood construction, inclosed by thin shutters readily removed during the summer. They usually have verandahs and are set in specially designed gardens.

**Engineering Works.** — Canals and bridges have been extensively carried out. The *Great Wall* (B.C. 200) is 1,400 miles long, 20 to 30 feet high, and 25 feet thick. It is formed with a battered face and carried over mountain heights, down deep gorges, across lofty tablelands and rivers, like a huge snake turned to stone.

Other buildings are public baths (No. 238 L, M), restaurants, hotels, theatres, etc.

**Cities.**—In China cities are of four classes, and are mostly quadrilateral or circular, with moats encircling the walls, and principal gates facing cardinal points. Pekin is a triple city: the outer is the Tartar city having an inclosing wall sixteen miles long, within that is the Imperial city, surrounded by a wall nine miles long, and the innermost city contains the Imperial Palace (No. 236). The walls surrounding these cities are of immense size and vary from 30 to 60 feet wide at the top.

## 4. COMPARATIVE.

### A. Plans.

*China.*—The normal type of temple consists of three buildings parallel with and entered through each other. Such are approached by massive flights of steps, gateways and bridges. The larger proportion are lofty one-storeyed buildings with open-timbered roofs.

The Buddhist temples resemble those of India, consisting of successive open courts and porticoes with kitchens, refectories and sleeping cells for the priests.

*Japan.*—The Sintu temples are distinguished from the Buddhist by having in front a *toran* or gateway consisting of upright pillars of granite, supporting two or more transverse beams in the same material. It is considered necessary to pass under such gateways for prayers to be effectual.

In houses the sizes of all living rooms are regulated by the Japanese mats (tatami) with which the floors are covered; and

which always measure one *ken* (six feet) by one *half-ken* wide, each room being some multiple of these. The Royal mats are 7 feet by 3 feet 6 inches (No. 238 J, M).

The houses of both countries owe their bright and cheerful character chiefly to their setting, being placed in gardens with hanging flowers, fountains, rockery, and flights of steps (see page 462).

The Pagodas were mostly octagonal on plan.

B. **Walls.**—Stone is employed for the more important edifices, but the ordinary building materials are brick (used principally for the base of walls) and wood. Most Chinese buildings, even when of wood, are raised on a stone platform to protect the building from damp. Brick is sometimes finished with a glazed, coloured surface, or the walls have a facing of glazed tiles or majolica. Walls are often constructed hollow, as described by Sir William Chambers, thus saving material and effecting a more equable temperature in the houses.

The *taas* or *pagodas* are of brick, covered with highly-coloured and glazed tiles or marble. Such structures vary from three to nine storeys, each being reduced in height and provided with projecting roof (Nos. 237, 238 E).

The verandah, or portico on wooden columns, is characteristic of the style and a special feature of the dwelling-houses.

In Japan, most of the houses are of wood-framing and cardboard, which is safer in the frequent earthquakes.

Temples (No. 238 G) have walls formed of timber posts, and rails dividing the walls into regular oblong panels, frequently moveable. These receive either plaster, boarding, or carved and painted panels. Light is introduced principally through the doorways.

An elaborate system of cornice bracketing crowns the walls, forming one of the most characteristic features of Japanese buildings (No. 240). Immediately above the pillars a highly decorated frieze-like space occurs, over this the bracketing consists of a series of projecting wooden corbels, supporting heavy horizontal beams and rafters with decorated faces, the total projection of the roof beyond the wall often being as much as 8 feet. The disposition of the pillars, posts, brackets and rafters forming these cornices appears to be according to well-known modules of measurement. Compare the canons laid down by Vitruvius and the Renaissance architects of Europe.

Optical illusions are sometimes corrected by cambering the underside of beams (compare Greece, page 56).

### C. Openings.

*China.*—Windows are square-headed, induced by the rectangular framing of timber posts, or lashing together of bamboos. They are

frequently filled in with the lining of the oyster shell, which is as transparent as talc, and admits an effective, subdued light. Doorways are of similar form varied in outline by the use of fretted pendants from the horizontal timbers.

Glass is seldom found in the native windows, paper being often used as a substitute.

*Japan.*—Owing to the great projection of the roofs and the lowness of the openings, direct light from the sky is seldom obtained, the light of the interior being reflected from the ground (No. 240 D). The windows are either filled in with trellis work or bars on the outside, and with wooden shutters and paper slides on the inside.

In connection with Temples are numerous gateways, one or two storeyed, the latter having muniment rooms over.

D. **Roofs.**—The framing of the roofs is of open timber construction. Such roofs appear to be often supported independently of the inclosing walls, being erected previously, and supported on wooden posts (No. 238). The angles are usually turned up sharply and ornamented with fantastic dragon ornaments (Nos. 238 G, F and 240 H, J, K). Such a form shelters the house from the direct rays of the sun while admitting daylight, and throws the rain-water clear of the walls. The ridges have elaborate ornamental cresting (No. 240 R, S).

The roofs are mainly covered with enamelled and coloured tiles of S shape (pan-tiles), placed in beds of mortar, which is also used to form cover-joints as a protection from the action of driving winds.

The method of forming the trusses supporting the tile work is by a system of rigid rectangles (not triangles as in Europe), formed of bamboos held together by wooden tenons. The weight of the roof acts vertically, no oblique thrust coming on the walls (No. 240 C).

The roof is the principal ornament of the building which it shelters, and contrasts very strongly with the Greek, Roman, and Renaissance styles, in which there is often an evident endeavour to hide the roof. It is considered a sign of dignity to possess several roofs one over the other, which serve to protect the interior of the house from the extremes of heat and cold.

Some derive the hollow curved form of roof from a "tent" origin; others, with greater reason, think the form resulted from the use of bamboos, which bend when weight is put upon them.

The connection between the roof and the pillars which sustain it is often effected by brackets, which give support and strength.

The soffites are usually divided into square or octagonal coffers by means of raised ribs with brass socketings at their intersection.


CHINESE AND JAPANESE ORNAMENT
A
B
DETAIL OF TWO COLUMNS AND BRACKETS
C
DETAIL OF EAVES
D
E
FRET-ORNAMENTS
F
J
TRIUMPHAL ARCH-CANTON
G
GARDEN TEMPLE
H
PAVILION-GREAT TEMPLE-CANTON
K
GLAZED PORCELAIN
GATE-TEMPLE of CONFUCIUS
L
SKETCH OF TENNO-JI PAGODA-OSAKA-JAPAN
TYPICAL JAPANESE HALF HIP & HALF GABLE ROOF
M
ALTAR SHRINE TEMPLE at NIKO-JI
N
JAPANESE LAMP
R
S
O
JAPANESE COMPOUND BRACKET
HORIZONTAL TIE
P
SIDE ELEVATION
Q
FRONT ELEVATION
JAPANESE PENT SHED
GABLE ENDS

In Japan the gable ends (No. 238 F, G) often have cusped barge-boards with carved pendants. A curious form of roof is produced by terminating the upper portion of the main roof in a gable vertically above the end wall, but continuing the lower portion round the ends in a hipped form, thus presenting a roof which is half hip and half gable (No. 238 G). The covering is usually of flat and roll tiles placed alternately, the ridge and hip crestings consisting of several layers of tiles in mortar crowned with large moulded tile capping (No. 240 M, N, R, S).

E. **Columns.**—The lightness, strength, and convenience of the bamboo caused it to be originally used in preference to squared timbers. The nature of the bamboo requires that it shall not be squared. It consists of a hard outer casing of great strength and an interior of pith which is of no constructive value. Such a wood was of importance in influencing a system of construction quite different from the framed European truss (Nos. 238 A and 240 A, B, C, D).

The slender columns often consist of plain circular posts with moulded base, without capital of any kind, but provided with bracketed tops of various design (No. 240 A, B, G, O). Such a treatment differentiates the Chinese architecture from all others, in which the capital forms one of the most important of architectural features, giving the date and style of a structure.

In Japan, according to Mr. J. Conder, the intercolumniation is regulated by a standard of about six feet, called a *Ken*, which is divided into twenty minutes, each minute being divided into twenty-two seconds.

Pillars are square, round, or octagonal; the round ones being often reeded and the square ones panelled. Sometimes they are inclined inwards, instead of being vertical.

F. **Mouldings,** as such, appear to be little used. Their place was taken by the coloured glazed tiles, projecting ends of timber, rafters, and the like. The bases to columns are often of moulded bronze, consisting of cyma and ovolo, or cavetto and ovolo (No. 240).

G. **Ornament.**—Chinese ornament faithfully expresses the national characteristic of oddness. All Eastern nations appear to have a natural instinct for harmonizing colour, and to this the Chinese are no exception.

Coloured ornament is applied to the buildings in the form of enamel glazed tiles, painted woodwork, and landscape and figure subjects. It is in the minor arts that the Chinese and Japanese excel, in their silk and cotton manufactures, in their carvings in wood and ivory, and their vessels of porcelain.

The umbrella is an old symbol of dominion and power, and

the triple umbrella is one of the most important insignia of the Emperor of China.

In Japan, the coloured and carved panels forming the inclosing walls, the elaborately formed and coloured projecting eaves to the roofs, and the *ramma* or pierced ventilating friezes under the cornices are characteristic. In these, panels in high relief frequently occur, representing such subjects as the chrysanthemum and jay, or the stork and pine tree.

For ornamental purposes, brass caps, usually gilded to preserve them from corrosion, and incised in patterns, are fixed to the ends of projecting timbers, to the junctions of beams and pillars, the bases and neckings of posts, and on doors to hide the connection of the stiles and rails, and the open joints due to shrinkage. Embossed gilt metal work is also liberally applied to the gable boards and pendants.

Colour decoration, introduced, it is said, from China in the sixth century, is very generally applied to the inside and outside of Japanese Temples. The beams, brackets, carvings and flat spaces are picked out in bright colouring and gilding, the colours being blue, green, brown, purple, madder, and vermilion. The wall paintings are generally on a gold ground, and represent animals, birds and flowers. Supporting pillars are usually black, red, or gold.

Among subjects for decoration, birds of bright plumage—as cranes, peacocks, pheasants, ducks—flowers, water-plants, trees, bamboos and lions are the most frequent, combined with weird and grotesque demons derived from earlier Indian sources, and resulting in a curious mixture of conventional and realistic forms.

The Japanese are also renowned in pottery, lacquer ware, ivory carving and inlaying.

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# ANCIENT AMERICAN ARCHITECTURE.

THE architecture of Central America is so unimportant in its general aspect that a few words will suffice to explain its character.

In **Mexico** an Aztec architecture from the twelfth century A.D. to the Spanish conquest in the sixteenth century existed quite apart from and uninfluenced by all other styles, yet bearing a general resemblance to some of them.

The temples had a base like an Egyptian pyramid, but were flat-topped, the summit being reached by flights of steps on all sides, or they were formed as storeyed terraces. On the top was the temple proper with a sloping roof. Examples exist at Cholula near Mexico, at Palenque in Yucatan, etc.

The Palaces, as at Zayi and Uxmal, appear to have derived their features and ornament from timber originals, rising in receding terraces and roofed with slabs of stone forming horizontal arches as in early Greek work at Mycenæ (No. 14).

In **Peru**, dating from the tenth century, are remains of flat-roofed buildings erected by the Incas, probably derived from mud originals, and executed in polygonal blocks of Cyclopean masonry of regular courses, similar to early Etruscan work (see pp. 47, 82).

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241.

# SARACENIC ARCHITECTURE.

"That haze which seems
Floating about the panel, if there gleams
A sunbeam over it, will turn to gold,
And in light graven characters unfold
The Arab's wisdom everywhere: what shade
Marr'd them a moment, those slim pillars made,
Cut like a company of palms to prop
The roof, each kissing top entwined with top
Leaning together."—BROWNING.

**1. Geographical.**—The extent of the countries brought under the influence of the Mahometan religion is indicated in the map (No. 241). Persia, Mesopotamia, Syria, Palestine, Egypt, North Africa and Spain were in turn wholly or in part subjected. India boasts, in the upper valley of the Ganges, a succession of Mahometan capitals due to the waves of invasion bursting through the north-west frontier.

Saracenic architecture differs from many other styles in being the product of a religion which had no special country. Differing widely in general treatment and in detail, the style was imposed

on each country brought under its influence. The term *Saracen* was that employed by the Greeks and Romans for the tribes occupying the deserts west of the Euphrates. Its exact origin appears to be unknown, but it is generally taken as being derived from the Arabic "*Sahra*," a desert. The name was given to the followers of Mahomet, and is so used throughout this chapter irrespective of nationality.

**ii. Geological.**—As the geological formation differed in each country, local materials and methods of building were employed, and marble, stone, brick, plaster and wood were all pressed into service. Domes were frequently constructed of brick plastered externally and internally, or of stone, as in India. They were generally built in projecting horizontal courses, thus avoiding oblique pressure on the supporting walls.

In Spain, brick and plaster were the principal materials responsible for the peculiar decorative surface treatment. In Northern and Central India, marble and red sandstone were available, and a more monumental type was evolved, richness in surface decoration being obtained by the inlay of precious stones.

**iii. Climate.**—The buildings, being for the most part in Eastern or Southern climes, have small openings, and no attempt at large entrances or window surfaces, although a special treatment of monumental entrance gateways was evolved in India (Nos. 251 B, E, 252 and 254). Such features are always subservient to practical necessity and to climatic influences.

**iv. Religion.**—The essence of the Mahometan faith—the last of the three great religions which have arisen from among the Semitic nations—is contained in the words from the Koran, "There is no God but God, and Mahomet is His prophet." The Koran was compiled by Mahomet (born A.D. 570, died 632), from the Bible, Talmud, Apocryphal Gospels, and other sources. Most of the states which embraced Mahometanism became independent, and only yielded nominal obedience to the Chief Caliph; thus in Syria, Persia, Egypt, North Africa and Spain, independent Caliphs reigned, accentuating the differences of style. The prohibition in decoration and sculpture of the use of all natural objects, including the human and animal forms, probably led to the intricate form of geometrical surface decoration known as *Arabesques*, partly influenced by Byzantine art (Nos. 247 and 248).

The Arab was a fatalist ("Islam = God's will be done"), to whom the present was everything, and such a condition often helped to the erection of buildings, not permanent in themselves, but decorated with pleasing forms and colours and with poor



242. Mosque of Kait-Bey, Cairo.

Showing Minaret and typical form of Dome with Surface Ornament.



materials, such as plaster. Local conditions and variety of temperament, however, affected such treatment, for in India and Egypt tomb houses of a permanent nature were constructed.

Such tomb houses, as the Táj Mehál at Agra (Nos. 251 A, B, C, and 254), formed pleasure houses during the life of the founder. The Moslems separate the sexes, and with royal personages separate tomb houses were often designed.

**v. Social and Political.**—The war of conquest by which Islam was to subjugate the world bears an important relation to the evolution of the style, and is outlined in the next section.

Each Caliph being a spiritual and temporal ruler, a junction of church and state was effected, which was responsible for the many religious buildings erected, and for the power wielded by each Caliph for perpetuating his memory. Architecture was also continually receiving an impetus by the building of new capitals, consequent on the change of dynasties. The position of women in the social system influenced the planning and design of palaces and houses, in consequence of the isolation of the harem. In towns, such influence was responsible for the elaborate and intricate lattice decoration of the windows, which prevented the women within from seeing or being seen.

In the "Arabian Nights' Entertainments" are described the Mahometan religion, customs and general Eastern life, which the student will find interesting and instructive.

**vi. Historical.** — Saracenic chronology dates from the "Hejira" or flight of Mahomet from Mecca to Medina in A.D. 622.

After the first four Caliphs, who were friends or kinsmen of Mahomet, came the dynasty of the "Ommiads" reigning at Damascus. They were overthrown in 750 by the descendants of Abbas, the uncle of Mahomet, who founded the "Abbasides" dynasty with Bagdad as the capital.

*Syria* was conquered by the Saracens A.D. 632–639.

*Egypt* fell in 638. The foundation of Cairo by the Fatimite dynasty dates from A.D. 971. Saladin, however, reconquered Egypt to the Caliphate of Bagdad in 1171, and in 1187 drove the Christians from Jerusalem.

*North Africa* was brought under subjection between the years A.D. 647–709, Carthage being taken in 698.

*Spain* was overrun by the Moors in A.D. 710–713, and the independent Caliphate of Cordova was established. This was divided later into the four petty kingdoms of Seville, Granada, Toledo and Valentia, all of which were gradually recovered by the Christians in the fourteenth and fifteenth centuries. The fall of Granada in 1492 marks the end of the Moorish rule in Spain.

*Sicily* was occupied by the Moors in the eighth century; they grafted their style on to the Christian architecture. Sicily was recaptured by the Christians in 1090.

*Persia* was conquered from A.D. 632–651. The Saracenic architecture of that country was then largely founded on and influenced by the architecture of the Sassanian empire (A.D. 226–641), which it transplanted. In the time of Haroun-el-Raschid (786–809), Bagdad, the capital of the Abbasides dynasty, was the centre of the arts and sciences.

*Turkey*.—Constantinople was conquered in A.D. 1453 by the Seljûk Turks, who in 1299 had commenced their conquering career under Osman I. in Bithynia. This marks the period of Byzantine influence on later Saracenic architecture, for S. Sophia, the great Byzantine cathedral, is henceforth the *motif* of the style.

The *Indian States* began to fall into the hands of Mahometan invaders in A.D. 1000. The Pathan dynasty (1193–1554) included the whole of North India. There were besides several independent kingdoms with capitals at Jaunpore, Gujerat, Malwa, Bengal, Kalbergah, Bijápur, Golconda and others.

The *Mogul Empire* (1526–1857) was founded by Bábar, who consolidated the Moslem Empire by the gradual absorption of the petty kingdoms. To this dynasty, especially at the capitals, Delhi, and Futtehpore Sikri, and Agra, belong the best known examples. Akbar the Great (1556–1605) removed the capital from Delhi to Agra, and afterwards founded Futtehpore Sikri as the capital of the empire.

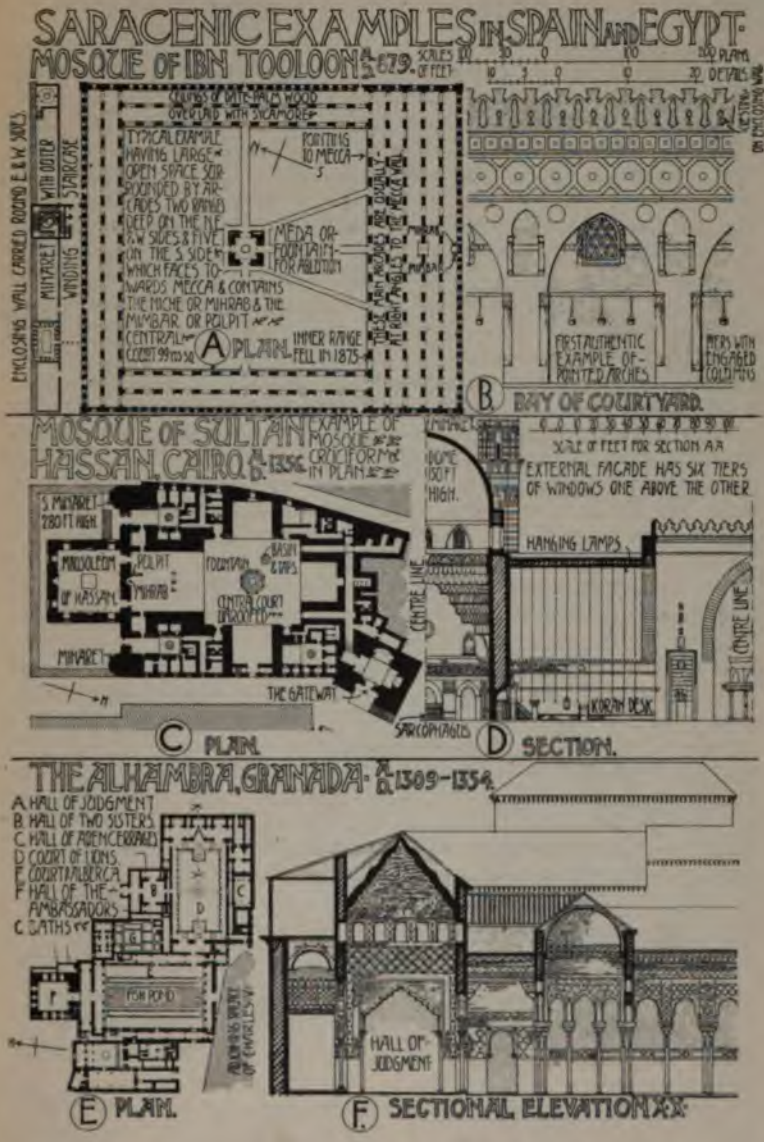
Sháh Jahán (1628–1658) raised the Mogul Empire to its highest strength and magnificence. He erected buildings in North India, forming splendid memorials of the Mogul dynasty as the "Táj Mehál" and the "Pearl Mosque" at Agra, the "Great Mosque" and Palace at Delhi, the latter celebrated for its "Dewan Khas," or court of audience.

From 1720–1761 the Mogul Empire was declining. Invaders came from Central Asia, and others (French and English) from the south. Titular emperors only, ruled from this period.

For a chronological summary of the dynasties, Sir W. Hunter's book should be consulted.

## 2. ARCHITECTURAL CHARACTER.

It is difficult to express the character which the style posseses, because of the varied nature it took in countries whose inhabitants differed widely in origin, and whose local types of architecture influenced that of the new religion.


SARACENIC EXAMPLES IN SPAIN AND EGYPT.
MOSQUE OF IBN TOOLOON A.D. 879.
SCALES OF FEET
PLANS
DETAILS
ENCLOSING WALL CARRIED ROUND E & W SIDES
MINARET
WITH MOTOR
WINDING
STAIRCASE
COURTS OF BRICK & WOOD OVERLAID WITH SCAGLIOLE
TYPICAL EXAMPLE HAVING LARGE OPEN SPACE SURROUNDED BY ARCADES TWO BAYS DEEP ON THE N. & W. SIDES & FIVE ON THE S. SIDE WHICH FACES TOWARDS MECCA & CONTAINS THE NICHE OR MIHRAB & THE MIMBAR OR PULPIT
POINTING TO MECCA
MEDA OR FOUNTAIN FOR ABLUTION
INNER RANGE FELL IN 1875
A PLAN.
FIRST AUTHENTIC EXAMPLE OF POINTED ARCHES
PIERS WITH ENGAGED COLUMNS
B BAY OF COURTYARD.
MOSQUE OF SULTAN HASSAN, CAIRO. A.D. 1356.
EXAMPLE OF MOSQUE OF CRUCIFORM PLAN
S. MINARET 280 FT HIGH
MAUSOLEUM OF HASSAN
PULPIT
MIHRAB
FOUNTAIN
BASIN & TAPS
CENTRE COURT 130 SQ FT
MINARET
THE GATEWAY
SARCOPHAGUS
C PLAN.
SCALE OF FEET FOR SECTION A.A
EXTERNAL FACADE HAS SIX TIERS OF WINDOWS ONE ABOVE THE OTHER
HANGING LAMPS
CENTRE LINE
KORAN DESK
D SECTION.
THE ALHAMBRA, GRANADA. A.D. 1309–1354.
A. HALL OF JUDGMENT
B. HALL OF TWO SISTERS
C. HALL OF ABENCERRAGES
D. COURT OF LIONS
E. COURT FALBERCA
F. HALL OF THE AMBASSADORS
G. BATHS
FISH POND
FOLLOWING PLAN OF CHARLES V
HALL OF JUDGMENT
E PLAN.
F SECTIONAL ELEVATION.

Mosques, tombs and dwelling-houses form the most important buildings. The mosques were undoubtedly more internal than external in their architecture, thus resembling the Egyptian temples. Within the inclosing wall the forest of columns and the low flat roofs in the earlier mosques, and the richly decorated wall surfaces and domes of the later periods, have especial character On the exterior the pointed or bulbous (pear-shaped) domes crowning the main structures, and the graceful, tall and elaborately decorated minarets (signal-post or light-house), used by the priests to call the faithful to prayer, impress the beholder with a different aspect to any style already considered. The same importance of internal treatment applies to dwelling-houses which are plain outside, but have the ornamentation lavished on the porticoes, walls, and pavements, of the interior. The architecture hardly ranks among those great styles which have been evolved on constructive principles, for it is from the decorative side that it is specially impressive. The surface decoration is important, and must have been largely due to the prohibition of natural forms laid down in the Koran. The pointed, horseshoe, multifoil, and ogee arches are all used (No. 248).

The introduction of vaulting into Egypt dates from the commencement of the Fatimite dynasty and the foundation of the city of Cairo (A.D. 971).

The use of "stalactite" vaulting was first applied in a similar position to the "pendentive" which the Byzantines introduced (Nos. 52, 54, 55). Its origin was probably derived from the corbelling over of slabs of stone to form a resting-place for the circular dome over a square plan. The ornament was eventually used for the bracketing of minaret galleries, the upper part of niches, the crowning member of walls, and elsewhere.

*Note.*—For the disposition of the essential parts of a mosque and the name given to each, see under A, Plans (page 488).

## 3. EXAMPLES.

*a*. Arabia.
*b*. Syria.
*c*. Egypt.
*d*. Spain.
*e*. Persia.
*f*. Turkey.
*g*. India.

### (*a*.) ARABIAN SARACENIC.

Although Arabia was the birthplace of the new faith, neither Mecca nor Medina can boast of any noteworthy buildings. The Arabs were only required to turn towards Mecca at prayer times,



244. CAIRO.

The Mosque of Kait-Bey, showing Mihrab (Niche) and Mimbar (Pulpit).



which was as easy in the desert as in a building, and the erection of mosques appears to have been immaterial.

At Mecca, however, is the great Mosque, repaired and added to by successive Egyptian Caliphs, and finally by the Sultan of Turkey in the middle of the sixteenth century. As now existing, it is an irregular shaped inclosure internally, 570 feet by 380 feet, surrounded by arcades of pointed arches, with an outer inclosing wall having gateways and minarets. In the centre of the inclosure is the *Kaabeh* or holy shrine, to which all other mosques must indicate the direction, by the *Kibleh* in the *Mihrab* (niche).

## (*b.*) SYRIAN SARACENIC.

In Syria three important buildings only need be mentioned.

The **Mosque-el-Aksah** (A.D. 691), on the Temple platform at Jerusalem, consists of a 3-aisled basilica, to which are added double aisles on both sides.

The **Mosque-el-Walid** (A.D. 705) is a 3-aisled structure placed laterally on one side of an open space.

The **Dome of the Rock** (also known as the Mosque of Omar), on the Temple platform of Jerusalem, was built in the eighth century, Saladin (1189) rebuilt the dome, and it was restored in the sixteenth century. In plan it consists of a central circular space crowned with a dome, pierced with windows. This space is surrounded by four massive piers, with intermediate columns of Corinthian type brought from older buildings. These support an entablature on which are placed semi-circular arches. The central portion is surrounded by two aisles, octagonal in plan. In the sixteenth century the interior was encased with marble, and the exterior with coloured Persian tiles and marble.

## (*c.*) EGYPTIAN SARACENIC.

The principal examples are at Cairo. One of the earliest buildings is the **Mosque of Amru** (seventh century), built by the Caliphs Abd-el-Melik and Walid. It consists of a central open space, surrounded by rows of columns, taken from Roman and Byzantine buildings, and supporting arches, at right angles to the Mihrab wall.

The **Mosque of Ibn Tooloon** (No. 243 A, B) (A.D. 879) is on similar lines, but with piers and angle shafts instead of columns. These support pointed arches, square in section. The construction is of brick with plaster surface. The windows are entirely filled

in with geometrical tracery, and the minarets are reckoned the earliest in Egypt.

At the end of the thirteenth century a series of mosques was commenced which corresponds in date with the Gothic development in Europe. The first of the series is the **Mosque of Kalaoon** (A.D. 1287). This was followed by the **Mosque of Sultan Hassan** (A.D. 1356), which differs from the normal type, being cruciform in plan (No. 243 C, D). The central space measures 147 feet by 105 feet, off which are four rectangular arms covered with pointed tunnel vaults. The southern arm contains the Mihrab, and beyond is the Founder's Tomb, about 70 feet square on plan, with a dome supported on stalactite pendentives. On either sides are minarets (No. 243 C), one being 300 feet in height. Externally the mosque is surrounded by walls crowned by a massive cornice, and divided into nine storeys, having a total height of 100 feet.

The **Mosque of Sultan Barkook** (A.D. 1384) is famous for its graceful dome over the tomb chamber, and for its minarets. In the following century the columned **Mosque El-Muayyad** (1415), and the small yet richly finished **Mosque of Kait-Bey** (1472), with elaborate minaret, are the best known (Nos. 242 and 244). After this period the influence of the Renaissance movement in Europe (see page 304) arrested the local character of Saracenic Architecture.

## (*d.*) SPANISH SARACENIC.

Algiers, Tunis, Barbary, Tripoli and Morocco in North Africa formed connecting links between the Eastern and Western development of the style, but these districts have been only scantily investigated.

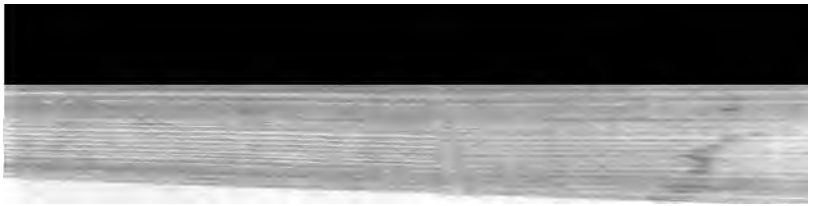
After the Moorish conquest of the Peninsula in the eighth century, a series of buildings was erected which may be compared to Basilicas (see pages 89, 115), extended in width by numerous parallel arcades. In these, the dome on pendentives is generally absent, and there is considerable ingenuity in geometrical design and coloured decoration. Roman remains influenced the development.

The **Mosque at Cordova** (A.D. 786) was commenced by the Caliph Abd-el-Rahman, and has since been enlarged, eastwards and southwards, by successive rulers, until it consists of a parallelogram 422 feet by 573 feet. The enclosed portion itself occupies more area than any Christian Cathedral, consisting of nineteen aisles placed North and South, with thirty-three bays to each aisle. The height is only 30 feet. The colonnades are in two heights (No. 245), formed of columns of varying design, mostly from older



245. CORDOVA.

Interior of Mosque, showing peculiar form of Colonnades in two heights.





246. The Giralda, Seville.





46. THE GIRALDA, SEVILLE.

## (*e.*) PERSIAN SARACENIC.

The architecture evolved by the Saracens in Persia was largely founded on that of the Sassanian dynasty (see Historical). The remains of this dynasty are chiefly palaces. The fire worship of the people required no temples, but the palaces indicate the influence of the older Assyrian and Persian architecture. In these Sassanian buildings, *e.g.*, the palaces at *Serbistan* (A.D. 350), *Firouzabad* (A.D. 450), and *Ctesiphon* (A.D. 550), constructive skill is shown, the lower courses of the vaults and domes being built in horizontal layers, to avoid the oblique pressure which would occur with radiating voussoirs. The remains of the palace at *Mashita* (A.D. 627) are considered by Mr. Fergusson to show a prototype of Persian and Indian Saracenic work. Under the Abbasides dynasty, Haroun-al-Raschid (786–809) erected several important buildings at *Bagdad*. The ruins of these tombs are sometimes taken to indicate the source of the stalactite vault.

The **Mosque at Tabreez** (A.D. 1204) is a domical structure, with impressive entrance and a decoration of coloured glazed brick in intricate patterns.

The **Tomb at Sultanieh** (A.D. 1303–1316) is an octagonal structure, crowned by a pointed dome 80 feet in diameter.

The great **Mosque at Ispahan,** by Shah Abbas the Great (1585–1629), has a large open courtyard surrounded by two-storeyed arcades. Special features are the immense pointed portal arches, the bulbous dome, and the round minaret, while permanent decorative effect is obtained by the use of many-coloured glazed bricks and tiles, the treatment of blue being particularly successful, recalling the palaces of Nineveh and Persepolis.

## (*f.*) TURKISH SARACENIC.

On the capture of Constantinople in 1453 by the Seljûk Turks, a type of architecture based on Byzantine structure, such as S. Sophia, was evolved. In these are to be found spherical domes, plain pendentives, semi-circular apses crowned with semi-domes, and the strong supporting buttresses such as exist in S. Sophia. In consequence there is an absence of the flat ceilings and columned courts of other types.

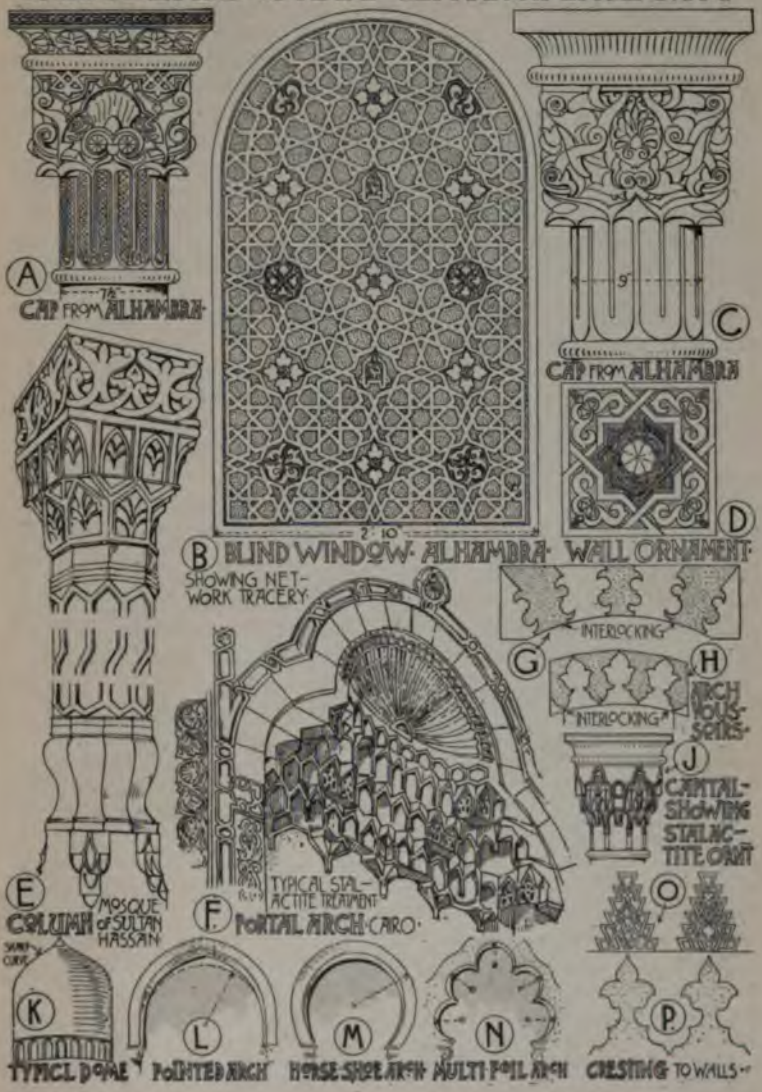
The Mosque of Suleiman I., "The Magnificent" (A.D. 1550–1556), commonly known as the "**Suleimaniyeh,**" was erected by Sinan the architect (No. 249). It has a forecourt nearly 200 feet in width, surrounded on all sides by a cloister roofed with small domes. In the centre of the forecourt is the usual fountain, and at the four corners are minarets.



247. The Alhambra at Granada.
Stalactite Capital, from Courtyard.



# SARACENIC ORNAMENT IN SPAIN & EGYPT.



The main structure resembles S. Sophia, but is of smaller dimensions, the dome having a diameter of 86 feet with a height of 156 feet. The gallery over the aisles is reached by two flights of circular steps. Internally the walls are covered with coloured marbles, the mihrab being white, with a frame of Persian coloured tiles. The decoration is effected by inscriptions from the Koran. The garden behind the mosque contains two octagonal tombs, that of the founder and his favourite wife. The former is built of many-coloured marbles lined internally with blue and white tiles. It is octagonal, surrounded by an arcade, and crowned with a dome decorated with arabesques and supported on eight marble columns.

The **Ahmediyeh** (Mosque of Ahmed I.) (A.D. 1608–1614), differs in being an exact square on plan. The central dome is supported on massive circular pillars and is surrounded by semi-domes. In the four angles, bringing the plan to a square, are smaller domes. Blue tiles form a special feature of the interior, and there are six minarets, marking the boundaries of the mosque and forecourt.

The *fountains* at Constantinople and other Eastern cities are special features of interest (No. 250). They have a niche on each face and wide-spreading eaves to the roof. The water tank, inclosed by a grating or grille, from which the metal cups are filled, occupies a central position. The exterior is often faced with marble and ornamented with arabesques and inscriptions in gold letters on blue and green grounds, in plaster or glazed tiles.

## (*g.*) INDIAN SARACENIC.

As already mentioned (page 476), Indian Saracenic must have been influenced by the remains of the Sassanian Empire (A.D. 226–641). The various dynasties, with their dates, have been given under Historical (see page 476). These periods overlap considerably, and render the progress of the style difficult to classify shortly. Only a few of the principal structures can be even mentioned. The use of marble and sandstone gives a monumental character to the buildings, not possessed by other types of Saracenic architecture. The dome on the square plan is used, but the stalactite pendentive appears to have been uncommon, its place being taken by a peculiar form of arching and corbelling in horizontal courses (No. 251 J). Colossal pointed portal arches, with semi-domes (No. 251 E) and round minarets, are special features.

*Delhi*, the capital of the Pathan dynasty in the thirteenth century, became the capital of the Indian Mahometan Empire,



249. The Mosque of Suleiman I.
Known as the "Suleimaniyeh."





250. Fountain near St. Sophia, Constantinople.



# SARACENIC EXAMPLES IN INDIA.

## THE TAJ-MEHAL: AGRA.
SHAH JEHAN A.D. 1628-1658




A PLAN AFTER FERGUSSON



B GENERAL VIEW

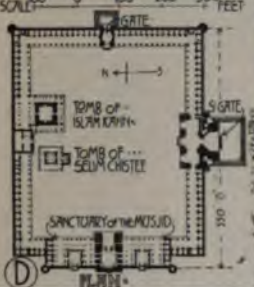
SCALE FOR SECTION
SCALE FOR PLAN




C SECTION A-B

## MOSQUE FUTTEHPORE SIKRI. ABKAR. A.D. 1556-1605

SCALE FEET




D PLAN.



E FROM A PHOTOGRAPH
GENERAL VIEW of S. GATE.



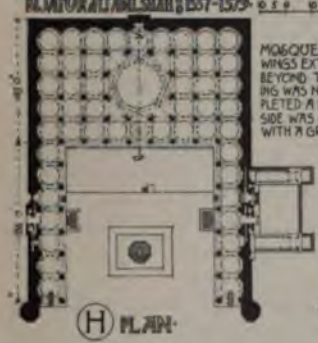

F SECTION.




G PLAN TOMB of SELIM CHISTEE

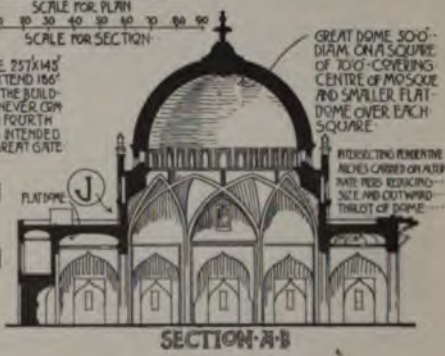
## THE JUMMA-MUSJID.
PLAN BY ALI ARCHITECT A.D. 1537-1573

SCALE FOR PLAN
SCALE FOR SECTION



MOSQUE 257' X 145' WINGS EXTEND 186' BEYOND. THE BUILDING WAS NEVER COMPLETED. A FOURTH SIDE WAS INTENDED WITH A GREAT GATE.

H PLAN.




SECTION A-B

and may be compared in its architectural importance with Athens, Rome, or Constantinople. Amongst numerous ruins of mosques and tombs are the **Kutub Mosque** and **Kutub Minaret**, a fine model of which is at the South Kensington Museum.

The **tomb of Shere Shah**, at Sasseram, stands on a platform with angle pavilions, in the middle of a sheet of water. It is octagonal on plan, surmounted by a dome, as are also the angles at the receding stages.

At *Jaunpore*, the **Jumma Musjid** (*i.e.*, principal mosque) (1419) and the **Atala Musjid**, have pointed keel-arches and bracket capitals, with roofs of flat slabs.

At *Ahmedabad*, the **Jumma Musjid** (1411) shows the influence of Hindu trabeated architecture in conjunction with the pointed arch. It has fifteen domes of different heights, each supported on twelve pillars.

At *Mandu* is the celebrated **Jumma Musjid** (1405–1432). It consists of an inclosed space 290 feet by 275 feet, having a square courtyard, surrounded on each side by arcades of eleven pointed arches. The piers supporting these are of red sandstone. Numberless pointed domes crown the spaces formed between the piers.

At *Gaur*, the ancient capital of Bengal, is the **Adinah Mosque**. The arcades surrounding the rectangle are crowned by no less than 385 domes of similar design. The architecture of this province is influenced by the absence of stone. Brick is the building material, and an essentially arcuate style is the result.

At *Kalburgah* is a mosque which is a deviation from the normal type, in that the whole area, 216 feet by 176 feet, was roofed in by a series of domes, light being introduced through high pointed arched openings in the outer walls.

*Bijâpur* possesses some famous examples, erected under the Adil Shaki dynasty. Of these the **Jumma Musjid** (A.D. 1557–1579) occupies a rectangle of 257 feet by 331 feet (No. 251 H, J). It consists of a series of squares, each covered wth a flat dome. In this building and the **Tomb of Mahmûd** are domes with singular pendentives. The latter building has a dome, 97 feet in diameter, placed on a platform formed by intersecting pendentive arches carried from each alternate pier; thus the space to be covered is reduced, and the weight of the pendentives acting inwards tends to counteract the outward thrust of the dome, as at Bijapur (No. 251 J).

**Mogul Architecture.**—The architecture of all previous periods was eclipsed by the architecture of the Mogul dynasty (A.D. 1526–1761). Some of the principal examples are tombs, and were erected at Agra, the capital. These were mostly octagonal, erected on a garden platform, laid out with ornamental fountains,



252. MOSQUE OF FUTTEHPORE-SIKRI.

Western Gateway, showing typical treatment of half-domed Entrance with recessed doorway.





253. FUTTEHPORE-SIKRI.

Marble Tomb of Selim Chistee, showing peculiar type of bracket capital and tracery windows.



the angles and entrances being accentuated by domed pavilions. Such tombs were, during the lifetime of the founder, used as festal halls.

At *Futtehpore Sikhri*, King Akbar (1556–1605) erected a group of important buildings, one of which is a mosque (No. 251 D, E). This is a three-domed structure, 290 feet by 80 feet, occupying the side of an open court, the whole inclosure measuring 550 feet by 470 feet, and containing two royal tombs. The southern and western gateways are specially noteworthy (Nos. 251 E and 252) as being of a style which prevailed throughout the period, and which may be contrasted with the Greek, Roman and Gothic styles in their treatment of entrance gateways. In the example (No. 252) the doorway is placed at the back of a recessed opening which is crowned by a semi-dome By this means the openings led up to the high inclosing arch of the outer wall by an easy gradation, giving all the size and dignity required for a noble portal without disturbing the æsthetic qualities of scale.

In the courtyard of this mosque is the marble **Tomb of Selim Chistee** (No. 251 D, F, G), with broad spreading eaves and elaborately carved bracket capitals (Nos. 253 and 255 F), of which there is a cast in the South Kensington Museum. The windows have pierced tracery of geometric pattern, a characteristic Saracenic treatment (No. 253).

The celebrated **Dewan-Kas**, or private audience hall, of which a plan and elevation are given (No. 255 H, J), has inlay work of precious stones on its walls.

*Shah Jehan* (1628–1658), grandson of Akbar, erected at New Delhi a palace of great size, of which only portions remain. It occupied a space of 1,600 feet by 3,200 feet, and had immense portal, entrance hall, courtyards, bazaars, audience and music halls, baths and gardens, besides accommodation for distinguished guests and court attendants.

The **Taj-Mehal**, at Agra, was also erected by *Shah Jehan*. It forms a part of one of the most famous groups of architectural monuments in the world. It is a royal mausoleum of white marble (No. 251 A, B, C), placed in the centre of a raised platform 18 feet high and 313 feet square, each angle being marked by a minaret 133 feet high. In plan it is symmetrical, being a square of 186 feet, with the angles taken off. It has a central dome, 80 feet high (No. 251 C) and 58 feet in diameter, crowned by an outer dome of the same height (No. 254). Around the central dome are two-storeyed aisles, each angle being provided with a small dome supported on pillars. The entrances are in the centre of each face and are of the usual recessed type, crowned with a four-centred arch set in a square frame. The

light to the interior is introduced through two pierced marble screens in the upper storey, producing a dim and subdued effect on the interior. The Taj is specially famous for its inlay of precious stones—jasper, bloodstone and agate, in ornamental scrolls and fretwork—which impart a rich effect to the fabric. In its setting of cypress trees, marble fountains, lakes and terraces (No. 254), the Taj produces an enchanting effect, which has been remarked by all travellers.

Shah Jehan also erected other notable buildings, including the **Muti Musjid, or Pearl Mosque, at Agra.** It is built of white marble, and is a three-domed mosque, placed on one side of a court, about 150 feet square.

The **Jumma Musjid at Delhi** has a similar type of plan. It is built of red sandstone and white marble, and is peculiar in being designed for external effect only, only occasionally sought for in mosques (see page 478).

After the Shah Jehan, few buildings of importance were erected, but a decline set in, due in part to the introduction of European modes and the influence of classic revivalism.

## 4. COMPARATIVE.

A. **Plan.**—The essential requirement of a mosque (Arabic, *mesgid* = place for prostration)—the principal type of building—is an unroofed inclosure approximating a parallelogram on plan, with central fountain for ablution, as enjoined by the Korân. This occupies a position similar to that in the atrium of the Christian basilica church. Around this open space were placed colonnades (No. 243 A), for protection from the sun. The side towards Mecca was the most frequented part, and was generally of extra depth. It contained the *Kibleh* (indicating the direction of Mecca) in the *Mihrab*, or niche, and the *mimbar* (pulpit) placed alongside (Nos. 243 A, C and 244). Near at hand is the "*dikka*," or tribune, from which the "*unām*" reads passages from the Korân and intones the prayers. *Minarets* accentuate certain portions of the plan, and are generally polygonal (Nos. 242, 243 C and 255 G).

A second type of plan is the Mosque of Sultan Hassan at Cairo (No. 243 C), which is cruciform on plan, the centre portion only being left open. The four arms are arched over with pointed vaults, and behind the mihrab is placed the founder's tomb crowned with a dome.

A third type of plan was based on the Byzantine model, in which the mosque proper was independent, having a front



254. THE TAJ MEHAL, AGRA.



courtyard, and a garden behind in which the tomb of the founder was placed.

The *Khans* (or Hotels), often erected in the great cities (ex. Khan of Kait-Bey at Cairo), had an open court, round which were placed numerous chambers used by the merchants or travellers, who came from all parts to dispose of their goods. In Constantinople there are 180 of these buildings.

The *dwelling-houses* are planned with interior courts in the Eastern manner, on to which the principal rooms face. The windows towards the street are small and strongly barred in the lower storeys, those to the upper storeys being often ornamented with lattice work No. 248 B). Special regard is paid to privacy in the planning of he corridors and in the isolation of the *harem* or women's apartments. There is generally a principal court, approached from the entrance, in which is placed a summer-house and fountain.

B. **Walls.**—Constructed of local materials, and ornamented with minute surface decoration, either in plaster, precious stones, or glazed tiles (see G. Decoration). In the Alhambra, the walls are inlaid with glazed tiles to a height of 4 feet, above which a separate scheme of arabesque treatment is carried out. In Cairo many of the walls are of stone on the ground floor, the upper part being of brick faced with plaster, or of wood. They seem specially treated for the privacy of the inmates, the windows, often with balconies, being fitted with elaborately designed lattice work, of which there are several examples in the South Kensington Museum. Another peculiarity is the banding of the walls in alternate courses of stones of different colours or of bricks (No. 242). The *minarets* are generally richly finished, they are usually square on plan changing in the upper storeys to polygonal and circular, each storey being marked by projecting balconies supported on stalactite bracketing and with pierced balustrading, as will be seen by referring to the Mosque of Kait-Bey (No. 242). The larger mosques have several minarets (No. 249).

A type of bold cresting often crowned the walls instead of a cornice (Nos. 242 and 248 O, P). The noble type of entrance, specially used in India (Nos. 251 E, 252 and 254), consisting of a high four-centred arch in a square frame, resembling a Tudor arch, and crowned by a semi-dome, has already been described (see page 487). In later Mogul architecture the walls are divided into panels by perpendicular and horizontal inclosing lines (No. 252).

C. **Openings.**—Windows were usually small, being regulated to some extent by the Southern climate in which Saracenic work was mostly carried out. They were often grouped together and occasionally had their entire surface fitted with elaborate tracery

work of marble and plaster, schemed into geometrical patterns—the small open spaces being of coloured glass (Nos. 248 B and 253). Compare with Gothic treatment.

Four types of arch were employed:—

(*a.*) The *Pointed Arch*, square in section and not moulded (No. 248 L).

(*b.*) The *Ogee or Keel Arch*, used in Persia and India (No. 248 K).

(*c.*) The *Horseshoe Arch*, used in Spain and North Africa (No. 248 M).

(*d.*) The *Multifoil or Scolloped Arch*, an especially Spanish feature (Nos. 245 and 248 N).

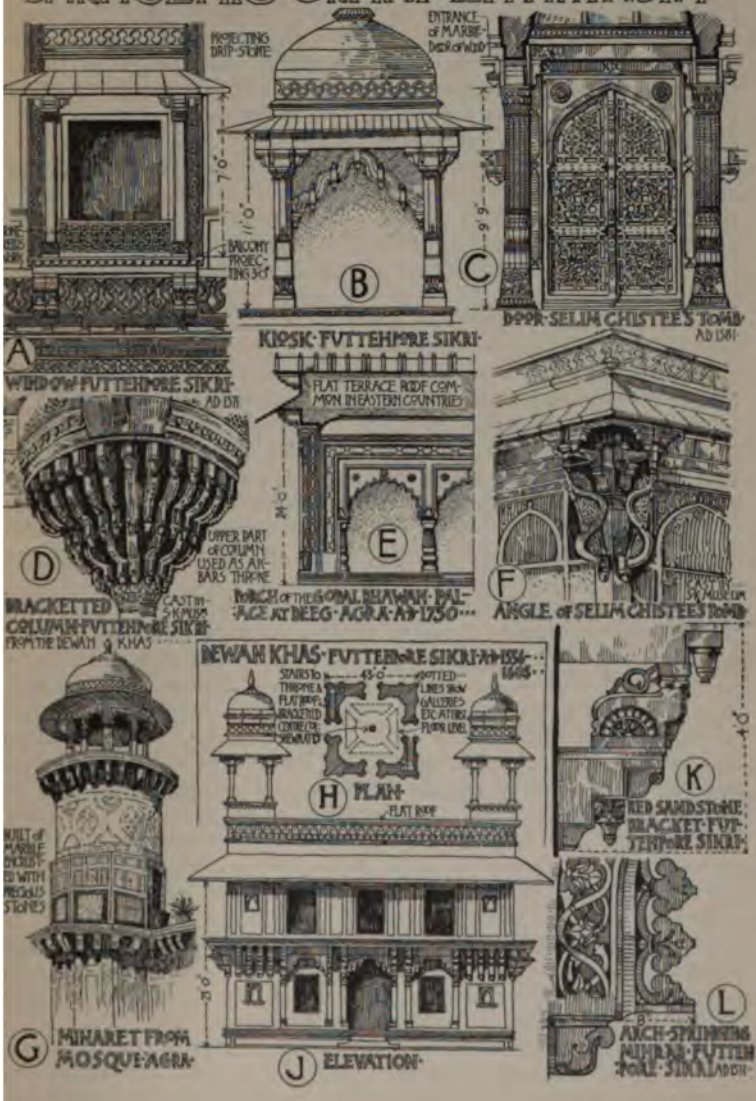
Such forms are used for arcades, window and door openings In arcades they either rest on columns (No. 243 F) or piers (No. 243 B), and are frequently tied in at their springing by wooden beams or iron rods. Voussoirs of interlocking patterns are also used, as at the Mosque of Kait-Bey (Nos. 244 and 248 G, H). The *doorways* were often surrounded with elaborate carved work, inclosed in a square frame, with stalactite cornices (No. 248 F).

D. **Roofs.**—The ceilings to undomed mosques were generally left with flat timbers, brilliantly coloured and gilded. In some instances, as at the Alhambra, timber was canvased over and plastered before being coloured.

The *Dome* is a special feature, occurring in the principal mosques and tombs, and is of the various forms already stated as employed for arches; it is seldom spherical as in Byzantine architecture. Domes are sometimes built of brick in horizontal courses, plastered inside and out. Others of a later period are of stone, also of horizontal courses, and with geometrical patterns worked on the external surface, as at the Mosque of Kait-Bey (No. 242), which differs from the Byzantine and Renaissance treatment. Windows are frequently placed in the lower parts (No. 249), which were occasionally ornamented with a fringe of sculptured foliage (No. 254). Domes were nearly always placed over square apartments, as in the Byzantine style, and the Saracenic architect had to face the same difficulty, which he overcame by a series of small pointed niches placed in rows one above the other. Each projected in front of the one below (Nos. 243 D and 248 F), and by easy gradation bringing the square to the circular ring from which the dome sprung (No. 243 D, F). This is known as "stalactite" work, and forms in fact the Saracenic pendentive, a striking contrast with the Byzantine feature, which was always a plain curved surface (Nos. 52 J, 54 B, 55 and 56). Such pendentives were often constructed of plaster and wood.

In India, where domical construction was carefully worked out, a peculiar form of angle or squinch arch was adopted (No. 251 J).

# SARACENIC ORNAMENT IN INDIA.



E. **Columns.**—Many of the earlier and later buildings have ready-made columns, re-erected from Roman and Byzantine buildings (No. 245). They were often, therefore, of different design, producing an incongruous effect. At the Alhambra, a type of capital of square upper form with long necking was evolved (Nos. 247 and 248 A, C). In these the columns are very slender, the height being twelve diameters. The capitals in the Alhambra are either treated with conventional scrolls (No. 248 A, C), or are formed with a stalactite treatment (Nos. 247 and 248 J). Such capitals have an upward continuation, of post-like shape, against the sides of which the stilted arch abuts, being supported by a piece of stalactite corbelling, as seen in the same example (No. 247).

In India, local Hindu influence produced a short stunted pier quite Eastern in character (No. 255 C, E).

F. **Mouldings.**—Mouldings are unimportant; their place was taken by the elaborate surface decoration already referred to. Such a treatment as the stalactite work used in rows one above the other, produces, however, a moulded effect in itself, similar to a crowning classic cornice (Nos. 242, 244 and 247). Mouldings, when used, follow on Byzantine models of plain cavetto and torus, and as a frame to doorways and windows often take the form known as the "billet," which was also used in Romanesque architecture (No. 108 C, G).

G. **Ornament** consisted of surface ornament, bounded by flat planes, and regulated, as far as *motif* was concerned, by the rules of the Korân, which prohibited the copying of natural objects. Compare in this respect the elaborate sculpture of a Gothic façade, or the classic treatment of a Greek temple or Roman triumphal arch. Debarred from the use of such an important quarry of forms, the Saracens were led to evolve and perfect a scheme of decoration in which the science of geometry was an important factor. They covered their buildings with geometric intertwining designs, which, in addition, they treated with gorgeous colouring in red, white, blue, silver, and gold, producing a most brilliant fretted surface, or "carpet-like" effect.

Among different types are :—

(A.) *Mnemonic* ornament, consisting of inscriptions from the Korân, worked into decorative panels, and composed either of lettering in the older style, known as *Kufic*, or of the flowing character of the later *Italic* lettering (No. 247).

(B.) *Surface* ornament in various planes, known as "***superposed.***"

The term *arabesque* (Arabian-like) is applied generally to geometrical surface designs, whether in plaster or painted tiles. In these designs endless variety is obtained by the joining

together of straight and curved lines, forming geometric figures of all conceivable forms (No. 248 B). It has been pointed out that such straight lines never form a right angle at their junction.

(c.) *Stalactite* decoration, primarily used to form the pendentives of domes (No. 243 D, F), was afterwards used decoratively in door-heads (Nos. 244 and 248 F), capitals (Nos. 247 and 248 J), and on walls generally. Examples of this treatment can be seen in the Mosque of Kait-Bey at Cairo (Nos. 242 and 244).

The stalactite pendentive is comparatively rare in Spanish Saracenic. The Saracens also excel in their surface decoration, as applied to the accessories of architecture. The *mushrebiyehs* (Arabic, *sharâb* = a draught), or elaborate lattice-work screens formed of numerous turned pieces of wood, are characteristic. Such screens are used to windows, projecting bay windows, portions of façades in town houses, and the drinking fountains. The *mimbars* (No. 244) are richly carved with such lattice work and with stalactite ornament. They are also inlaid with ebony ivory, etc., and have interlocking arch voussoirs of coloured marbles. An elaborate example is that of the Sultan Kait-Bey (No. 244).

The student should visit the Saracenic galleries at the South Kensington Museum, where he will gain an excellent idea of the ornamental features and colour decoration of the style.

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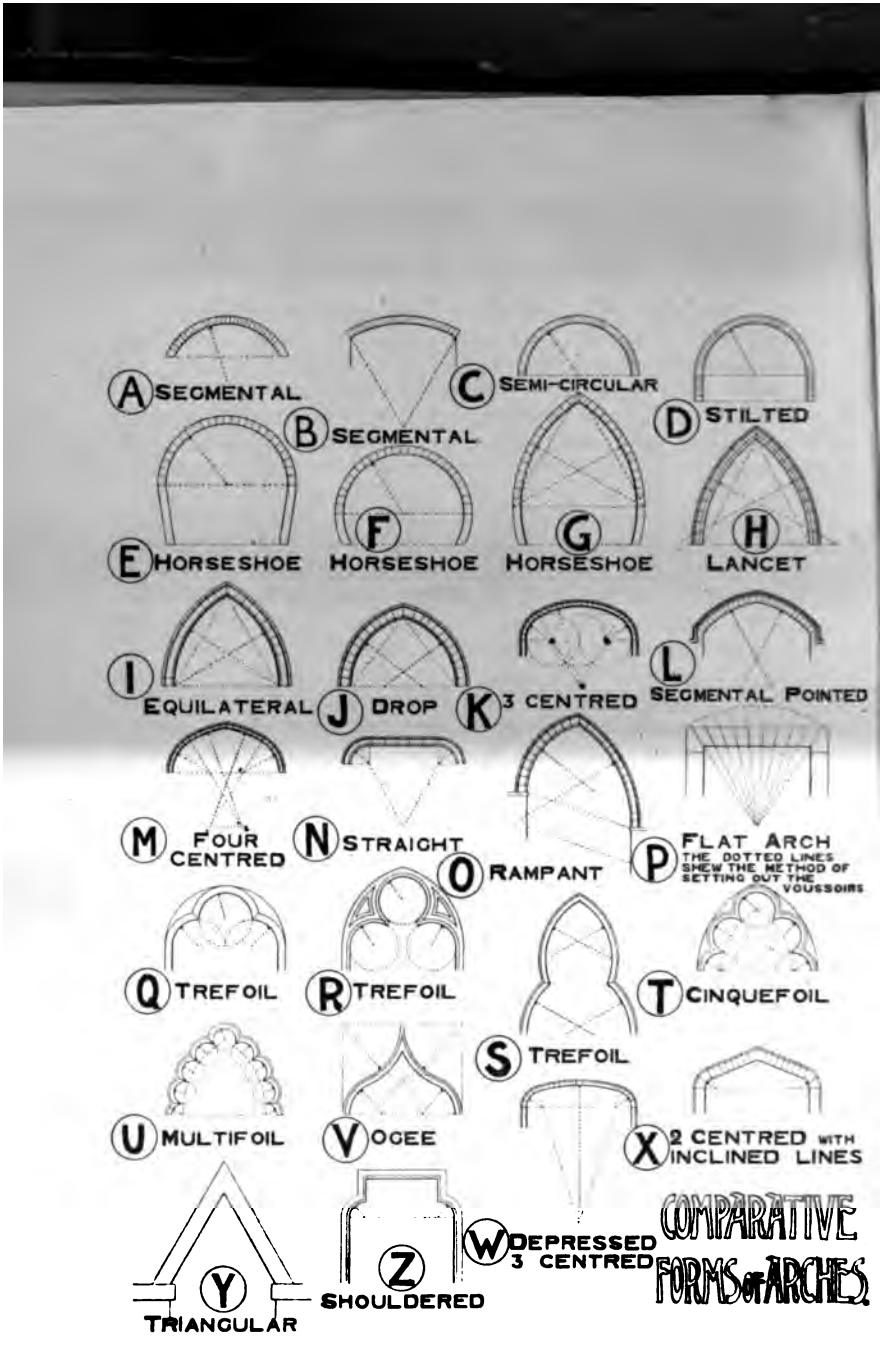
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*See also* INDIAN AND EGYPTIAN ARCHITECTURE.


A SEGMENTAL
B SEGMENTAL
C SEMI-CIRCULAR
D STILTED
E HORSESHOE
F HORSESHOE
G HORSESHOE
H LANCET
I EQUILATERAL
J DROP
K 3 CENTRED
L SEGMENTAL POINTED
M FOUR CENTRED
N STRAIGHT
O RAMPANT
P FLAT ARCH
THE DOTTED LINES SHEW THE METHOD OF SETTING OUT THE VOUSSOIRS
Q TREFOIL
R TREFOIL
S TREFOIL
T CINQUEFOIL
U MULTIFOIL
V OGEE
X 2 CENTRED WITH INCLINED LINES
Y TRIANGULAR
Z SHOULDERED
W DEPRESSED 3 CENTRED
COMPARATIVE FORMS OF ARCHES

"Architecture is the printing press of all ages, and gives a history of the state of society in which it was erected."—MORGAN.



# GLOSSARY OF ARCHITECTURAL TERMS, WITH REFERENCES TO THE ILLUSTRATIONS.

**Abacus** (Gk. *abax* = a board).—A square or rectangular table forming the crowning member of a capital. In Grecian Doric, square without chamfer or moulding (No. 23 A). In Grecian Ionic, thinner with ovolo moulding only (No. 23 C). In the Roman Ionic and the Corinthian, the sides are hollowed on plan and have their angles cut off (Nos. 23 D and 44 C). In the Romanesque period, the abacus is deeper but projects less and is moulded with rounds and hollows, or merely chamfered on the lower edge (Nos. 70 J, K, L, M, 75 B, D, 79 C, D, F, K and 112). In Gothic architecture we find that the circular or octagonal abacus is mostly favoured in England (No. 113), while the square or octagonal abacus is a French feature (No. 126).

**Abutment.** — The solid masonry which resists the lateral pressure of an arch (Nos. 32, 52, 54, 114, 160, 184, 212 E and 215 B).

**Acanthus.**—A plant, whose leaves conventionally treated, form the lower portions of the Corinthian capital (Nos. 28 J, 44 A, 51 A, C, 60 and 215 C).

**Acropolis** (Gk. = upper city). — Most ancient Greek cities were built upon hills, and the citadel on the summit of the hill was known as the *Acropolis*, and contained the principal temples, treasure houses, etc. (Nos. 1 and 15).

**Acroteria** (Gk. the summit or vertex, the extremity of anything).—Bases or blocks of stone resting on the vertex and lower extremities of the pediment and intended for the support of statuary or ornaments (No. 16 A).

**Agora.**—The Greek *Forum*, a place of open air assembly or market.

**Aisle** (Lat. *ala* = a wing).—The lateral divisions which run parallel with the nave in mediæval and other buildings (Nos. 48, 77, 89, 116, 164 and 212).

**Ambo.**—A raised pulpit from which the Epistle and Gospel were read (Nos. 45, 46 B and 55).

**Amphi-prostyle** (Gk. both with columns before).—A Temple having a portico at both extremities (No. 17 E) (see page 52).

**Ancones** (Gk. elbow or hollow).—A small console on each side of a door supporting an ornamental cornice (Nos. 25 D and 167 J).

**Annulet** (Lat. *annulus* = a ring).—A small flat fillet encircling a column. It is used several times repeated under the ovolo or echinus of the Doric Capital (Nos. 23 A, 27 D and 220 A).

**Anta** (plural *antæ*). — Pilasters terminating the side wall of a temple, and having base and capital differing from those of adjacent columns (see Pilaster) (Nos. 17 and 28 F).

**Antefixæ** (Lat. *ante*, before, *figo*, I fix). — Ornamental blocks, vertically fixed at regular intervals along the lower portion of a roof, to cover the joints of the tiles (Nos. 16 D and 28 N).

**Anthemion** (Gk. = flower). — A term given to the honeysuckle or palmette ornament of several varieties,

used in cornices, in the necking of Ionic capitals, and elsewhere in Greek and Roman Architecture (Nos. 25 E, 26 J and 28 A, F).

**Apophyge** (Gk. a flying off).—The cavetto or concave sweep at the top and bottom of the column proper, connecting it with the fillet (No. 27).

**Apse** (Gk. signifying an arch).—The circular or multangular termination of a church choir; the term being firstly applied to a Roman basilica. The apse is a continental feature, and contrasts with the square termination of English Gothic work (Nos. 72 D, F, 77 C, G, 96 D, 116 and 120, etc.).

**Araeostyle** (No. 26 V) (see page 52).

**Arcade.** — A range of arches supported on piers or columns, and attached or detached from the wall (Nos. 47, 139, 144 and 209).

**Arches** are of various forms, and can be best understood by referring to No. 256.

**Architrave** (Gk. = chief beam).—The beam or lowest division of the entablature which extends from column to column (Nos. 16 A, 25 A, D and 155 E, etc.). The term is also applied to the moulded frame which bounds the sides and head of a door or window opening.

**Archivolt.**—The mouldings on the face of an arch resting on the impost (Nos. 66 H and 75 F).

**Arris.**—The sharp edge formed by the meeting of two surfaces.

**Ashlar.** — Squared stonework in regular courses, in comparison with rubble work.

**Astragal** (Gk. = a knuckle-bone).—A small semicircular moulding, often ornamented with a bead or reel (No. 26 C, D). *Torus* is the name applied to large mouldings of similar section (No. 26 P, Q).

**Astylar.**—A treatment of façade without columns (No. 153).

**Atlantes.** — Carved male figures serving as pillars, also called *Telamones* (No. 21 N).

**Atrium** (Nos. 42 B and 46) (see pages 103, 118).

**Attic.**—A term generally applied to the upper storey of a building above the main cornice; also applied to low rooms in a roof (Nos. 125 and 177 G, H).

**Baldachino.**—A canopy supported by columns, generally placed over an altar or tomb (Nos. 45, 49, 65).

**Ball-flower.** — The characteristic ornament of Decorated Gothic architecture (No. 111 C).

**Baluster.**—A small pillar or column supporting a handrail (Nos. 195 H and 203) or coping, the whole being called a balustrade (No. 210 A, B).

**Baptistery.** — A separate building to contain a font, for the baptismal rite (No. 63).

**Base.**—The lower portion of any structure or architectural feature.

**Basement.**—The lowest storey of a building, also applied to an underground storey.

**Basilica** (Gk. *basileus*, a king).—A term which came to be applied to a large hall for the adminstration of justice (page 89) (Nos. 36, 46 A, B and 47, etc.).

**Battlement.**—A parapet with a series of notches or indentations in it, from which arrows, etc., may be shot. The indentations are called *embrasures* and the raised portions *merlons* (No. 111 M).

**Bay.**—The division or compartments into which the nave or roof of a building is divided (Nos. 91 and 128 A, C).

**Bead.**—A small cylindrical moulding often carved with an ornament resembling a string of beads (see page 70) (No. 26 C, D).

**Belfry.**—A term generally applied to the upper room in a tower in which the bells are hung (No. 98 E), and thus often to the tower itself.

**Bema.**—A raised stage or platform reserved for the higher clergy in Early Christian Churches. Synonymous with sanctuary, it forms the germ of the transept in later architecture (No. 48 C, E).

**Billet.**—A moulding used in Norman times; it resembles short pieces of stick cut off and arranged alternately (No. 108 C, D, G).

**Boss** (Fr. *bosse* = lump or knob).—A projecting ornament, placed at the intersection of the ribs of ceilings, whether vaulted or flat. The term is also applied to the curved termination

to the weather-mouldings of doors and windows. Bosses are often carved with great delicacy, with heads of angels or flowers and foliage (Nos. 81 A, 84, 109 D, J and 113 O, P).

**Bowtell.**—A Gothic circular moulding, probably derived from the word *bottle* (No. 112).

**Bracket.**—A projecting ornament carrying the upper members of a cornice (see Ancones and Console). Generally formed with scrolls or volutes at the two ends (Nos. 44 D, 152 A, B and 159 B, C).

**Broach-spire.**—An octagonal spire rising above a tower without a parapet, and having the angles of tower covered with pyramidal forms, as in Early English works.

**Buttress** (Fr. *aboutir* = to lie out).—A mass of masonry projecting beyond the face of the wall to resist the pressure of an arch or vault. The development in each century will be noted under each style (Nos. 52, 72 B, 81 A, 96 B, 114 A, 118 B).

A *flying* buttress is an arch resting on a detached pier some distance from a wall, the inner end resting against the church wall to take the thrust of the vaulting (see page 202) (Nos. 72 B, 81 A, 114 A and 118 B).

**Byzantine architecture.**—The style evolved at Constantinople or Byzantium in the fifth century (page 126), and which is essentially the style of the Eastern or Greek church to the present day.

**Campanile.**—An Italian name for a bell tower, generally detached from the main building (Nos. 68, 86 A, 142, 145 K, 175 K and 213).

**Canopy.**—A covering over niches, tombs, etc. (Nos. 97, 135 A, C, L and 151 F, M, N).

**Capital** (Lat. *caput* = a head).—The upper portion of a column or pilaster (Nos. 9, 12 A, C, G, 23, 44 A, 61, 70, etc.).

**Caryatides** (No. 28 M).—Sculptured human female figures used as columns or supports (see page 72). Traditionally taken to represent the women of Caria, who sided with the Persians against the Greeks, and were made slaves.

**Caisson.**—A panel or coffer in a ceiling (see Coffers) (see also Nos. 42 C, 47, 159 H, etc.).

**Cavetto** (Ital. *cavare*, to dig out).—A simple concave moulding (No. 26 E, F).

**Chancel** (Lat. *cancellus* = a screen).—The portion set apart for the clergy and choir and separated by a screen from the body of the church (Nos. 96 D and 98 C).

**Chapels.**—Places of worship, attached to churches, in honour of particular saints, sometimes erected as separate buildings (No. 120).

**Chapter-house** (Lat. *capitulum*) usually opened out of the cloisters on the easternmost side, as at Westminster (No. 96 D). It was the place of assembly for the abbot or prior and members of a monastery for the transaction of business. In England, it was usually polygonal on plan, with a vault resting on a central pillar. Ex. Lincoln (No. 89 E), York (No. 89 A), Westminster (No. 96 D), etc. It was sometimes oblong, as at Canterbury.

**Chevet.**—A term applied to a circular or polygonal termination of a cathedral or church (known as the apse), when it is surrounded by chapels (No. 120 B). Such chapels sometimes open direct into the nave (No. 72 F).

**Choir** (see Chancel).

**Choragus.**—A term given in Greece to those who superintended a musical entertainment, and provided a chorus at their own expense.

**Cinquefoil** (No. 256 T).—A perforation of five points (see Quatrefoil).

**Clepsydra** (Gk. to hide water).—An instrument for measuring time by the discharge of water, a water clock.

**Clerestory.**—The upper division in the nave of a church above the triforium (Nos. 81 A and 96, 105, 106). Probably derived from the French *clair* = light, being obtained at this stage.

**Cloisters.**—Covered passages of communication, surrounding a square open space called the garth, and connecting the cathedral to the chapter-house, refectory, etc., of the monastery to which they were attached (Nos. 86 A, B, D and 87 G). They were generally placed on the south of the nave, and west of the transept, as at Westminster

(No. 96 D). The desire for sunlight and warmth probably suggested this position.

**Coffers** (*Lacunaria*).—Sunk panels formed in ceilings, vaults, or domes (Nos. 32 A, 33, 47, 49, 84 C, 165, 179 G, etc.).

**Column** (Lat. *columna*).—A vertical support, generally consisting of a base, shaft, and capital (Nos. 23, 33, 50).

**Console** (Nos. 28 K, L, 187 G, H) (see Bracket and Ancones).

**Coping.**—The capping (whence the name) or covering to a wall.

**Corbels** (Lat. *corbis* = a basket) are blocks of stone projecting from a wall, and supporting the beams of a roof or any weight; they are often elaborately carved and moulded (Nos. 75 B, G, J, 107, 135 J and 155 C).

**Corbel Table.**—A plain piece of projecting wall supported by a range of corbels and forming a parapet, generally crowned by a coping (Nos. 70 C, 75 B and 105).

**Corinthian.**—The third order of Grecian architecture (No. 23 E).

**Cornice** (Fr. *corniche*).—In Greek architecture the crowning or upper portion of the entablature (Nos. 16 A and 27 A), used as the term for any crowning projection (Nos. 152, 153, 158, etc.).

**Corona.**—The square projection of the upper part of the cornice, having a broad vertical face generally plain, and with its soffit or under portion recessed so as to form a "drip," which (as its name implies) prevents water from running down the building (No. 27 A, B, P, Q, R).

**Cortile.**—The Italian name adopted in English for the internal area, or courtyard, surrounded by an arcade in a palace, or other edifice (Nos. 152 E, G and 159 F).

**Crocket** (Fr. *croc* = a hook).—Projecting leaves or bunches of foliage used in Gothic architecture to decorate the angles of spires, canopies, etc. (No. 111 J, K, L), as in the spires of Ratisbon (No. 132).

**Cross.**—The symbol of Christianity, generally placed on the summits of gables and in other positions of prominence. It is often contained in a circle, and in the fourteenth and fifteenth centuries became richly floriated and of more complicated forms.

**Crypts** (Gk. *cryptos* = hidden), are vaults, either entirely or partly beneath a building. In churches they generally occur beneath the chancel (Nos. 66 A, 160 C, 172 C and 212 E). In early times they were used as places of burial.

**Cupola** (L. *cupa* = cup). — A spherical roof, rising like an inverted cup over a circular or multangular building (Nos. 32, 53, 54, 57, 58, 59, 137, 142, 160, 164, 173, 184, 212 and 213).

**Cusps** (Lat. *cuspis* = a point).—The trefoil, quatrefoil, etc., terminations of Gothic tracery (Nos. 109, 110, etc.).

**Cymatium.**—The crowning member of a cornice, so called from its contour resembling that of wave (No. 27 Q, R).

**Dado.**—The portion of a pedestal between its base and cornice. A term also applied to the lower portions of walls when decorated separately.

**Daïs.**—A raised portion at the end of a mediæval or other hall, where the master dined apart from his retainers. The term is now often applied to any raised portion of an apartment (No. 101 F).

**Decastyle.** — A portico of ten columns.

**Dentils** (Lat. *dentes* = teeth).—Tooth-like ornaments occurring originally in the Ionic and Corinthian cornices (Nos. 23 and 152 A, B).

**Diaper.** — Any small pattern of flowers, etc., repeated continuously over the wall as in the nave of Westminster Abbey (No. 96 C).

**Dipteral** (Gk. = double-winged).—A temple having a double range of columns on each of its sides (No. 17 J).

**Distyle** (see page 52).

**Dog-tooth.**—An ornament resembling its name, specially occurring in Early English work (No. 111 A).

**Dome** (It. *duomo* = cathedral, from domus = house).—The custom in Italy being to erect cupolas over churches, the word *dome* in English and French has passed from the building to this form of roof (see Cupola).

**Doric.** — The simplest "order" of architecture (No. 23 A).

**Dormer.**—A window in a sloping roof. It was usually the window of the sleeping apartments, hence the name (Nos. 184 E, 186 K and 187 F).

**Dripstone**, label, or hood-mould, the termination of a projecting moulding in Gothic architecture placed over the heads of doorways, windows, archways, etc., generally for the purpose of throwing off the rain (Nos. 109 and 110).

**Early English.**—The first of the three divisions of Gothic architecture, which was being evolved during the thirteenth century.

**Eaves.**—The lower portion of a roof projecting beyond the face of the wall (Nos. 124 and 194).

**Echinus.**—Properly the egg-and-dart ornament originally used in the Ionic capital; often applied to the bold projecting ovolo of the Doric cap (Nos. 16 A and 27 D).

**Entablature.**—The portion of a structure supported by a colonnade, in Greek architecture comprising the architrave, frieze and cornice (Nos. 16 A and 23).

**Entasis** (see page 56).—A slight swelling on the shaft of a column to prevent a hollow appearance in its sides.

**Eustyle** (No. 26 T).—A term given when the space between two columns is 2¼ diameters.

**Exedra** (Gk. = out of a chair).—A recess occurring in a larger room (Nos. 42 B and 54 C). In Greek buildings, the disputations of the learned were held in such recesses, so called from containing a number of seats. The Romans applied the term to any semi-circular recess with benches, and to the rooms used as parlours (No. 38 K).

**Façade.**—The front view or elevation of a building (as Nos. 58, 161 and 171 A, F).

**Fan Vault.**—A system of vaulting peculiar to English perpendicular work, all the ribs having the same curve, resembling the frame-work of a fan (Nos. 84 E and 99).

**Fascia** (Lat. *facies* = a face).—A flat vertical face in the entablature or any architectural feature (see page 55). The architrave of the Ionic and Corinthian orders is divided into two or more *fasciæ* (Nos. 23 and 220).

**Fillet** (see No. 26 A, B).

**Finial** (Lat. *finis* = the end).—The top or finishing portion of a pinnacle, bench end or other architectural feature (Nos. 114, 115, 118, 122, 125).

**Flamboyant** (Fr. *flambeau*=flame).—Tracery in which the stonework is made to flow upwards in long wavy divisions like flames of fire (No. 136).

**Flèche.**—A term generally applied to a wooden spire surmounting a roof (Nos. 126 B and 193 C, E).

**Fluting.**—The vertical channelling on the shaft of a column (Nos. 23 and 27 K, O).

**Flying-buttress.**—A buttress springing by means of an arch over the aisle of a church, and counteracting the thrust of the nave vault (Nos. 72 B, 81 A, 114 A and 118 B) (see Buttress).

**Formeret.**—The half ribs against the wall in a groined ceiling. The English term is "wall-rib."

**Fresco.**—The term applied originally to painting on a wall while the plastering is wet. Often used to mean any wall painting not in oil colours, but more properly called "tempera" or "encaustic."

**Frieze** (It. *fregio* = adorn).—The middle division of the entablature (Nos. 16 A, 23 and 159 B) (see Zoophorus).

**Gable.**—The triangular portion of a wall, marked by the enclosing line of the roof (Nos. 101 J, 193, 195 D, 205 A and 207). (In classic architecture it is called the pediment (Nos. 16 A, 21 C, O and 31)).

**Galilee.**—A porch used as a chapel for penitents, built near the west end of abbey churches. The origin of the term is conjectural. Some derive it from the Latin *galeria*, a long porticus or porch. Galilees at Durham, Ely (No. 89 B), Peterborough (No. 89 C) and Lincoln (No. 89 E).

**Gallery** (Nos. 100 E and 204).—A passage common to rooms in an upper storey or a long room to hold pictures, etc.

**Gargoyle.**—A projecting water-spout in Gothic architecture to throw off the water from the roof, often grotesquely carved (No. 126 C, E).

**Groin.**—The angle formed by the intersection of vaults (Nos. 83, 84).

**Guilloche** (No. 26 F) (Gk. snake-like). — An interlaced ornament-like network, frequently used to enrich the "torus" moulding (see page 70).

**Guttæ** (or Drops).—Small pyramids or cones occurring under the triglyphs and mutules of the Doric entablature (Nos. 16 G, H and 23 A).

**Hagioscope** (or squint).—A term used for oblique openings found in mediæval church walls for the purpose of seeing the altar.

**Half-timbered construction.**—A structure formed of wooden posts, and the interstices filled with brick or plaster (Nos. 101 J and 207).

**Hammer-beam roof.**—A late Gothic form of roof without a direct tie, the finest example being Westminster Hall (No. 85 H) (page 209).

**Hecatompedon** (No. 17 H) (Gk. a hundred-foot temple).—A temple of one hundred feet in length. A term applied to the Parthenon, whose cella was 100 Attic feet in length internally. By some applied to the width of the façade, the length along the upper step of the Parthenon being 100 Attic feet = 101·241 English feet.

**Hexastyle.**—A row of six columns (No. 17 F).

**Hieron** (Gk. a holy place). — The whole of the sacred inclosure attached to a temple, including the priests' dwellings and the grounds.

**Hood-Mold** (see Dripstone).

**Hypæthral** (Gk. = under the air). —A building or temple without a roof or possessing a central space open to the sky (No. 4 A).

**Hypostyle.**—A pillared hall (No. 4 A).

**Hypotrachelium** (Gk. under the neck).—The channels or grooves at the junction of capital and shaft of a column (No. 23 A).

**Impost** (Lat. *impono* = I lay on).—The member usually formed of mouldings, on which the arch immediately rests (Nos. 45, 66 H, 79 J, N, 109, etc.).

**Intercolumniation.** — The space between the columns (No. 26 R, S, T, U, V).

**Ionic** (Nos. 23 C, D, 27 F and 220 D) (see page 57).

**Jambs.**—The sides of the openings of doors and windows (Nos. 66 F, J, K and 109 C, G, L, M). The portion outside the window frame is called the reveal.

**Keel Moulding.**—A moulding like the keel of a ship formed of a circle on which is a fillet; used in the fourteenth and fifteenth centuries (Nos. 22 and 112). Also applied to a similar form of arch (No. 256 V).

**Keystone.**—The central stone of an arch (Nos. 44 B and 83 B, C, E).

**King-post.** — A beam extending from the ridge, supporting the tie-beam in the centre (Nos. 211 D and 212 E).

**Label** (see Dripstone).

**Lancet arch.**—A sharp pointed arch, resembling a lancet, chiefly in use during the Early English thirteenth century period (Nos. 110 F and 256 H).

**Lych Gate.**—A covered gateway, forming a resting-place for the coffin before entering the churchyard, and under which the first portion of the burial service should be read.

**Lierne.**—A short intermediate rib in vaulting (No. 84 N, P).

**Lintel.**—The piece of timber or stone that covers an opening, and supports a weight above it (Nos. 5, 7 and 25).

**Loggia.**—A gallery open to the air, and forming a shelter.

**Metope** (Gk. = a hole between).—The space between the Doric triglyphs. In ancient examples it was left quite open, hence the name (Nos. 16 A and 28 H).

**Mezzanine.**—A low storey between two lofty ones (Fr. Entresol).

**Miserere.**—A seat, made to turn up and down, affording support to a standing person. The underside is frequently grotesquely carved (No. 135 G, H).

**Modillions.** — The projecting brackets in the Corinthian cornice (Nos. 159 B and 220 E).

**Module.**—A measure of proportion, by which the parts of a classic order or building are regulated, being usually the semi-diameter of a column, which is divided into thirty parts or minutes (Nos. 23 and 220).

**Mosaic.**—A method of forming

decorative surfaces by small cubes of stone, glass and marble; much used in Roman and later times for floors and wall decoration (see Nos. 45 and 51 B, H, L).

**Mouldings.**—The contours given to projecting members (see page 23, etc., Nos. 26, 27 and 112).

**Mullions** are used in Gothic architecture, to divide the windows into different numbers of lights, these being usually glazed in leaded panes (Nos. 110 and 136).

**Mutule.**—The projecting inclined blocks in the Greek Doric cornice, supposed to be derived from the ends of wooden rafters (Nos. 23 A and 220 A).

**Narthex.**—A long arcaded Porch forming an entrance into a Christian basilica, originally appropriated to penitents (Nos. 48 E and 54 C).

**Naos.** — The cell or principal chamber in a temple, see sheet of plans (No. 17 H). The English *nave* is derived from the Gk. *naos*, and signifies the central or main division of the plan (Nos. 98 C and 120 A, B).

**Nave** (see Naos). — The central division of a church, west of the choir.

**Necking.**—The space between the astragal of the shaft and the commencement of the cap proper (Nos. 23 and 27 N).

**Newel.** — (1) The central shaft, round which the steps of a circular staircase wind; (2) also applied to the post in which the handrail is framed (Nos. 203, 205 E and 210 C).

**Niche.**—A recess in a wall for the reception of a statue or ornament (Nos. 97 and 155).

**Norman.**—The style which preceded the Early English in this country, also termed English Romanesque.

**Octastyle.** — A range of eight columns (No. 17).

**Ogee** (cyma-reversa).—A form of moulding (No. 26 M) or arch (No. 256 V).

**Opisthodomos** (No. 17 H) (also called Epinaos or posticum) (Gk. a back room, or behind a house).—In Greek architecture an open vestibule within the portico, at the end behind the cella in most peripteral or dipteral temples, corresponding to the pronaos at the principal end, into which opens the main entrance.

**Order.**—In architecture, signifies a column, with its base, shaft and capital, and the entablature which it supports (Nos. 23 and 220).

**Oriel.**—A window corbelled from the face of wall by means of projecting stones (No. 210 E).

**Ovolo** (No. 26 N, O).

**Panel.**—The compartments formed by the framing of timbers (see Nos. 205 D, 175 G and 186 C, E).

**Parapet** (Ital. *parapetto* = breast high). — The upper portion of the wall above the roof; it is sometimes battlemented, a method derived from purposes of defence (Nos. 103 A, 111 M, N, O, 118 A, B and 126 C, D).

**Pediment.**—In classic architecture the triangular termination of the roof of a temple (Nos. 16 A and 21 C, O). In Gothic architecture called the Gable.

**Pendentive.**—The triangular curved surface by means of which a circular or octagonal dome is supported on a square compartment (Nos. 52 J, K, 55 and 56) and plate.

**Peripteral.**—An edifice surrounded by a range of columns (No. 17 H).

**Peristyle.**—A range of columns surrounding a court or temple (see sheet of plans, No. 17).

**Perpendicular.**—A phase of English Gothic evolved from the Decorated style, and in use during the fifteenth and sixteenth centuries in England (see page 243), so called from the lines of tracery in use (No. 110 N, O).

**Pier.**—The mass of masonry supporting an arch or beam, etc., in contradistinction to a circular column (Nos. 75 L, M, N, O, P, 171 G, H and 175 J).

**Pilaster.**—An anta or square pillar, projecting about one-sixth of its breadth from the wall, and of the same proportion as the order with which it is used (Nos. 155 G, J and 156).

**Pinnacle.** — A small turret-like termination, placed on the top of buttresses or elsewhere, often ornamented upon its angles by bunches of foliage called crockets (Nos. 81 A, 97 and 114 A).

**Piscina** (Lat. = a reservoir of water)

is a small niche near the altar, with a hole in the bottom to carry off the water in which the priest washed his hands, and also that in which the chalice was rinsed. The term is also applied to the swimming pond in Roman baths.

**Pitch of Roof.**—The inclination of its surface to the horizon.

**Plan.**—The representation of a building showing the general distribution of its parts in horizontal section (see Nos. 17, 89, 116, etc.).

**Plinth.**—A low square step on which a column is placed (Nos. 23 and 220).

**Podium.**—A low pedestal wall; also the inclosing wall of the arena of an amphitheatre (Nos. 31, 39, 40).

**Portico.**—The space inclosed within columns and forming a covered ambulatory (Nos. 22, 31 and 39).

**Presbytery** (No. 120 D).—A word applied vaguely to the choir, the sacristy, and the space between the high altar and the lady chapel (also called the Retro-choir).

**Priory.**—A monastic establishment presided over by a Prior, who was a subordinate to the Abbot.

**Pronaos** (No. 17 H).—The part of the temple in front of the naos (often a similar meaning with Portico).

**Propylæum** (Gk. = a portal in front of).—An entrance gate or vestibule, in front of a building or set of buildings. Examples at Athens (No. 15), Priene, Sunium and Eleusis, etc.

**Prostyle** (Gk. = a column in front).—An open portico, standing in front of the building to which it belongs (No. 17).

**Pseudo-dipteral** (Gk. false double-winged), *i.e.*, in which the inner range of columns is omitted in a colonnade, which is apparently two columns in depth (No. 17 L).

**Pulvinated** (Lat = a pillow).—A frieze, whose face is convex in profile, is said to be pulvinated (No. 176, upper frieze).

**Pycnostyle** (No. 26 R).

**Quadriga.**—A four-horsed chariot often surmounting a monument.

**Quatrefoil** (Fr. *quatre-feuilles* = four leaves).—In tracery a circular panel divided into four leaves (No. 110 K, L).

**Quoin.**—A term generally applied to the corner stones at the angles of buildings, and thence to the angle itself (Nos. 158 and 159 D).

**Refectory.**—The dining hall in a monastery, convent or college.

**Renaissance** (Fr. rebirth).—The re-introduction of classic forms in architecture, all over Europe, in the fifteenth and sixteenth centuries. (For the causes which led up to this movement, see page 304.)

**Reredos.**—The screen, or ornamental work, at the back of the altar. In Manchester, St. Albans, and Durham Cathedrals they are carved structures reaching to the roof.

**Rib.**—A term used in Gothic vaulting (see Nos. 81, 83 and 84).

**Ridge.**—The highest point of a roof, running from end to end.

**Rococo style.**—A debased application of Renaissance feature (see page 353).

**Roll moulding** (No. 112), also called scroll moulding; so called from its resemblance to a scroll of paper, one edge of which projects over the other part.

**Rood loft.**—A raised gallery in front of the Chancel arch, to carry a crucifix or rood, used for reading portions of the church service. The framing under, known as the *rood screen*, separates the chancel from the rest of the church.

**Rose-window**, see wheel-window (Nos. 114 B, 117 and 122).

**Rustication.**—A method of forming stonework with recessed joints, principally employed in Renaissance buildings as at Florence, etc. (No. 153).

**Screen.**—A partition or inclosure of wood, often elaborately carved, and separating the choir from the nave. The Latin *cancellus* = screen, corrupted to "chancel," primarily used for the inclosing object, was afterwards applied to that which it inclosed (Nos. 56 and 92).

**Scotia** (Gk. *scotia* = darkness).—The concave moulding in the base of a column, throwing a deep shadow (No. 26 G, H).

**Section.**—A term used by architects to express the representation of a building, divided into two parts by a vertical

plane, so as to show the construction. The term is also applied to any solid in the same way (Nos. 40 B, 46 D, 112, 164 G, etc.).

**Sedilia** (Lat. = seat) are the seats for the priests, generally of masonry, placed in the wall on the south side of the chancel.

**Shaft.**—The portion of the column between the base and capital (Nos. 16 A, B and 23).

**Soffit.**—The ceiling; the underside of any architectural member (No. 159 A).

**Span.**—The width or opening of an arch, roof, or beam, between its supports.

**Spandrel.** — The triangular space between the curve of an arch and the square inclosing it (Nos. 96 G, 109 J and 113 M, N).

**Spire.**—The pointed termination to the tower of a church in Gothic or Renaissance architecture; usually octagonal on plan; in Renaissance architecture, carried up in storeys (Nos. 86 A, 88 A, D, F, 90 and 214).

**Squinch arch.**—Arches in projecting planes, placed diagonally in the interiors of towers to bring them from the square to the octagon, and so support the octagonal spire (No. 149).

**Stalls.**—Divisions or fixed seats for the clergy and choir, and are often elaborately carved. They have large projecting elbows and carved "misereres," and are often surmounted by overhanging canopies. The bishop's seat is called the "throne." The student should visit Henry VII.'s Chapel at Westminster, and the Abbey Choir (No. 95).

**Steeple.**—The term applied to the tower of a church, including the spire (Nos. 98 and 214).

**Stilted arch** (see No. 84 C, G).

**Stoa.** — In Grecian architecture, a portico; a term corresponding with the Latin *porticus* and the Italian *portico* (No. 15).

**Storey.**—The vertical divisions of a building, by the means of floors.

**Stylobate.**—The base or sub-structure on which a colonnade is placed (No. 16 A).

**Systyle** (see No. 26 S).

**Temenos.**—The sacred precinct in which stood a temple or other sanctuary.

**Tenia.**—The band or fillet forming the upper member of the Doric architrave (No. 16 A).

**Terra-cotta.**—Earth baked or burnt and formed into moulds, and used ornamentally. A fine example, used constructionally, is Sutton Place, near Guildford.

**Tetrastyle.** — A portico of four columns (No. 17 D, E).

**Tholos.**—A dome (cupola) of a circular building, hence applied to the building itself (see Tholos at Epidaurus) (No. 17 K).

**Torus.**—A large convex moulding, used principally in the bases of columns (No. 26 P, Q) (see Astragal).

**Trabeated** (Lat. *trabs*=a beam).—A style of architecture such as the Greek, in which the beam forms the constructive type.

**Tracery.**—The ornamental pattern work in stone, filling the upper part of a Gothic window; it may be either "plate" or "bar" tracery. The term is also applied to work of the same character in wood panelling, etc. (Nos. 110, 111 N, O and 114 B).

**Transept.**—The part of a church, projecting at right angles to the main building (see Nos. 98 C and 120 A).

**Transoms.** — The horizontal divisions or cross-bars to the windows (Nos. 110 N, O, 186 K and 190 A).

**Trefoil** (*trois-feuilles* = three leaves). —A term applied to this distribution in Gothic tracery (Nos. 110 B, C, E and 256 Q, R, S).

**Triforium.**—The space formed between the sloping roof over the aisle and the aisle vaulting. It occurs in large churches only, and, from having no windows to the open air, is often called a blind storey (Nos. 81 A, 91 D, G and 96 C).

**Triglyphs** (Gk. = three channels) occur in the frieze of a Doric entablature (Nos. 16 A and 23 A, B).

**Turrets** are small towers, often containing staircases (No. 102).

**Tympanum.**—The triangular space within the raking cornices of a pediment (see frontispiece and No. 16 A).

**Vault.**—An arched covering in stone

or brick over any space (Nos. 30, 40 B and 84).

**Vestibule.** — An ante-room to a larger apartment, or to a house.

**Volute** (Lat. *voluta* = a scroll).— The scroll or spiral occurring in the Ionic and Corinthian capitals (Nos. 23 C and 27 F).

**Voussoir.** — The wedge-shaped forming the arch (No. 83).

**Weathering.**—The slope given to the upper side of cornices, mouldings, etc., to throw off the rain.

**Wheel-window.**—A circular window, whose mullions converge like the spokes of a wheel, hence the name (Nos. 114 B and 122).

**Zoophoros.**—A frieze in which reliefs of animals are introduced (see Frieze).

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*(See also Table of Contents and Glossary of Terms.)*


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